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AUSTRALIAN WOOD REVIEW

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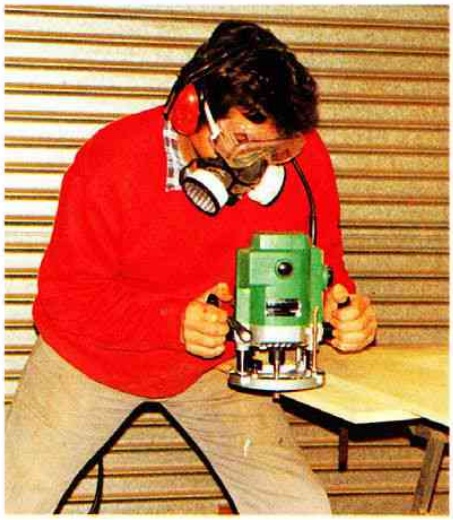

Extending the use of your router, p.18.

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Editor: Linda Nathan
Technical Editor: James Brook
Machinery Technology Editor: Philip Ashley
Regular Contributors: Anton Gerner, John McLennan, Stephen Hughes, Terry Martin.
Editorial and Advertising Enquiries
Tel (07) 3287 7088 **Fax** (07) 3287 7099
Administration & Advertising Co-ordinator: Margaret Read
Magazine layout: Linda Nathan
Staff Writer: Dinah Hall
Office Assistant: Lachlan Wood
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Cover: Milling timber at Ironwood Antique Timbers, Darra.
Issue 12, September 96
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Safety: Woodworking can be dangerous. Do not undertake any work, process or action without adequate skill, training, safety equipment and/or awareness.

EDITORIAL

What other raw material used by the manufacturing, design and craft industries inspires as much emotion and controversy as wood? It's hard to imagine the sort of political interest which surrounds the harvesting of wood and forestry practices being applied to the sourcing of steel, gold, silver, clay, fibre or glass.

It could be something to do with the way that wood retains its character even after it has been fashioned into an object or artwork. The internal markings and figure of the timber are always apparent—in some cases the exterior bark and edges may even be still visible. Seeing the 'trees in the wood' is probably one reason why woodworkers are passionate about their resource. Of course the whole population responds to the importance of forests as a national environmental resource.

As a large or small scale manufacturer or maker of craft objects you have a heritage in the sawmilling industry of this country which was founded almost with the arrival of the First Fleet. This issue covers the beginnings and development of sawmills all around Australia up to the 1930s—next issue we'll cover some of the dramatic changes which took place after that.

The 'sawing' theme continues on the technological front where Philip Ashley looks in detail at the modern sawblade. In addition Bob Howard writes about Japanese saws and compares them to their Western counterparts.

Making things from wood is about defining spaces to suit certain objects. On page 8 Michael Gill reviews an exhibition of boxes which is sure to extend your notion of this concept. Following on, we have detailed plans for a beautiful document box from Neil Erasmus which incorporates hand cut veneers and inlay.

Each issue we feature many beautiful examples of woodwork. But we all know that in the real world it's not always perfection. What if the glue didn't set, the polish 'bloomed' or you stained something the wrong colour. What about the day you had a visit from the 'client from hell'. We'd like you to share your woodworking horror stories with us. The most entertaining entries will be published next issue. You must include your name and address with your entry, although these won't have to appear in print.

Next issue we have planned a woodturning feature which will feature some of the most recent works from the lathe in this country. We'd like to include the work of 'new name' turners as well as some of the well known exponents. We invite you to send in a few images of your latest work for possible inclusion in our story. Good quality prints or transparencies (either black and white or colour) are essential.

Linda Nathan, Editor.

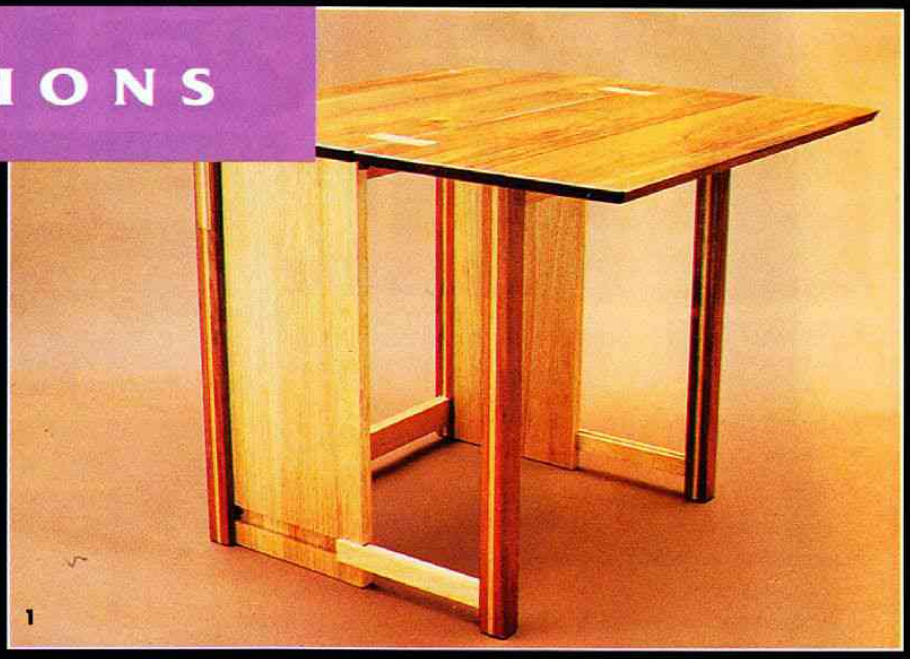
EXHIBITIONS

LIVING WITH WOOD

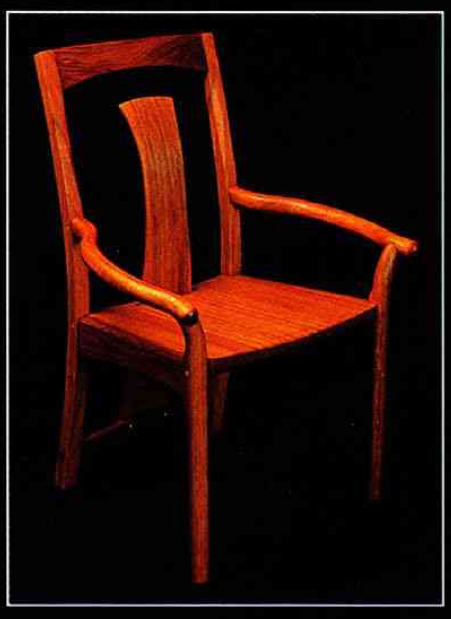
'An exhibition of quality furniture and design by the Victorian Woodworkers Association', Meat Market Craft Centre, Melbourne, May-June, 1996
Reviewed by Graeme Coop

National television coverage, prizes, publishing a design directory, interstate speakers, site visits, and regular newsletters to the members... The VWA is reflecting the professional aspirations of a younger breed of members in adopting a more entrepreneurial and public attitude. Perhaps, after all, there may be a sustainable career in designing and making things in wood.

There are now a host of exhibitions for work in wood in Victoria, with annual shows at Doncaster, Warburton, Orbost, and Melbourne's Fringe. So what makes this addition to the exhibition calendar different?



1 Stacey McCaig, *Extended Table*, blackwood and Victorian ash.
2 Bruce Goodsir, *Magic and Mysteries*, clear sassafrass, black hearted sassafrass and myrtle.
3 Brett Hope, *Bent*, a screen in myrtle and steel rod.
4 Bruce Moonie, *Tri Tables*, myrtle and Victorian ash, Vic. ash, gold leaf.
5 Andre Drezga, *East West Chair*, salvaged kwila.



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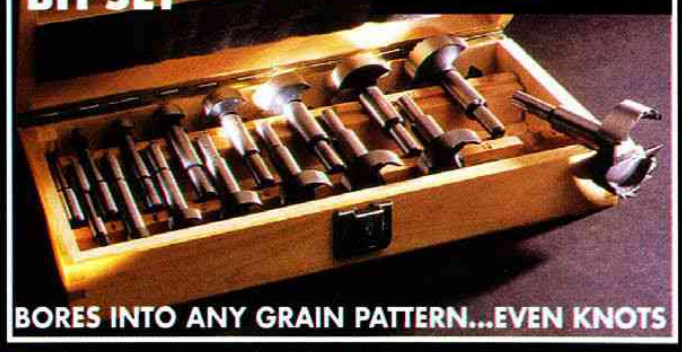

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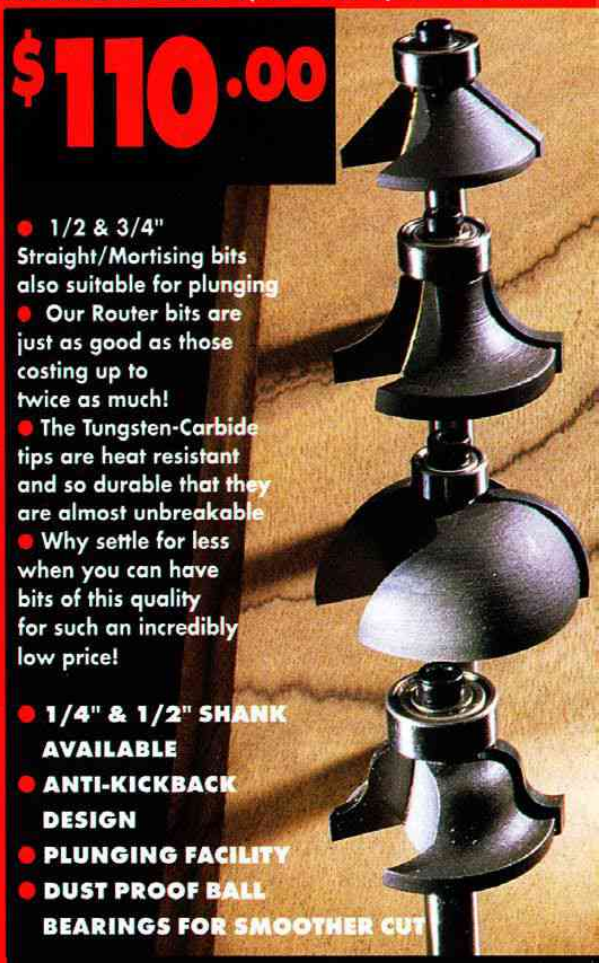

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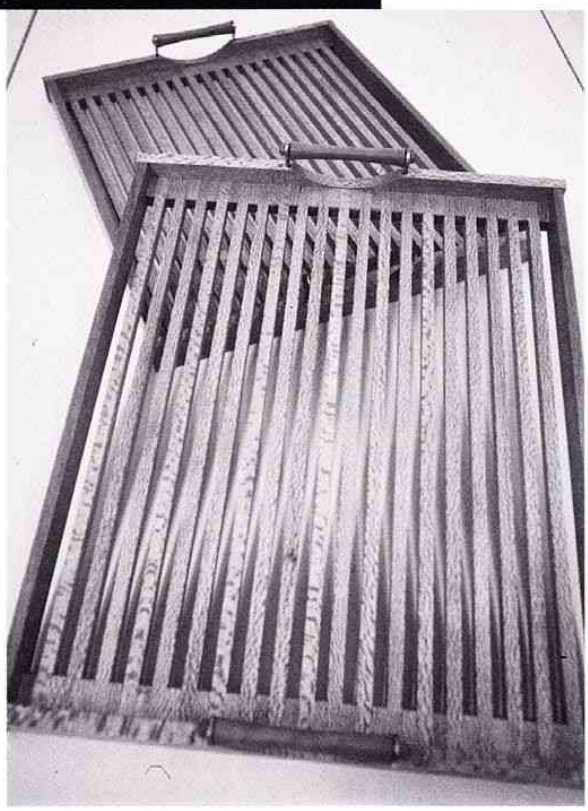
EXHIBITIONS

Craftspeople are capable of producing work of an international standard, but are notoriously poor at marketing their work. The intention of the VWA organisers has been to improve the exhibition agenda in two significant ways: presentation and promotion.

On both counts Living with Wood has succeeded. The show is attractive and coherently displayed despite the disparity of the work. But more importantly time and effort has been put into promotion. A segment on the ABC's 'Arts Today' raised public awareness to the quality of the work. The glossy catalogue, termed *The Directory*, is sufficiently informative about the individual designer/makers to be retained for reference as intended. A new standard for exhibition publicity has been set.

Bruce Goodsir received the VWA Prize for 'Best Exhibit' for his *Magic and Mysteries* cabinet, a well proportioned and finely crafted piece that lives up to its name with an internal pulley system and pivoting myrtle drawers. This is a piece of endless fascination, a container for memories and stories which creates a palimpsest for generations to come.



John Graham, *Silky Tray*, silky oak.

The two other monetary prizes were both won by John Graham. The Timber Promotion Council's Prize for 'Most Marketable Use Of Natural Features In Victorian Hardwood' was awarded for his elegant *Silky Tray*. I'm pleased to report that a natural featured Victorian ash version of the tray will soon be entering production. The Mathews Timber's 'Most Marketable Design for Domestic or Export Market' went to Graham's '*Kog*' mirror. Both the tray and mirror are simple, unfussy designs, easy to make, and have an obvious popular appeal. They are made from wood but the material is almost incidental. What is important is that a strong design concept has been translated into a memorable form.

Commendations were also awarded to Rolf Meumann for his *Knockdown Bed* (see AWR #10), to the award magnet Anton Gerner for his *Breakfast Table And Chairs*, and to Bill Henshall for his sturdy *Garden Table With Cantilever Benches*. Of these, the bed seems the most innovative. This is a piece that has considerable commercial appeal to those who wish to move up from the trusty futon. The bed is a resolved prototype of a piece aimed for production, with an eye for the export market.

It is too soon to measure the success of this new show. The level of public exposure for the work has been high, sales and commissions have resulted. The test will be whether the momentum can be maintained, as gauged by the quality of the submissions for next year.

Graeme Coop is a director of Detail Contemporary Furniture Gallery, and coordinator of Arts+Industry's Furniture 96.

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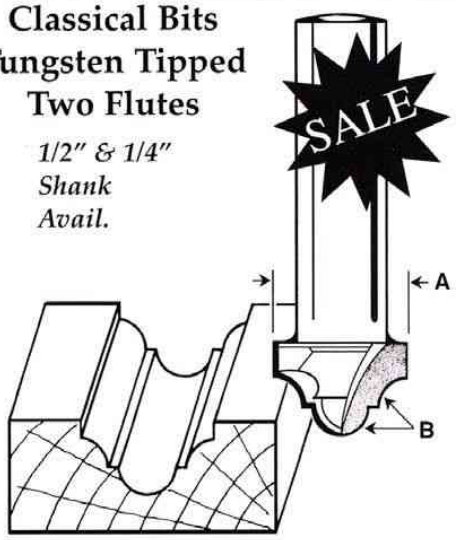

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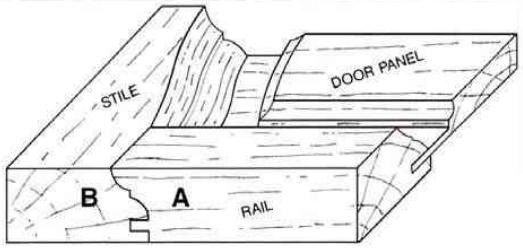

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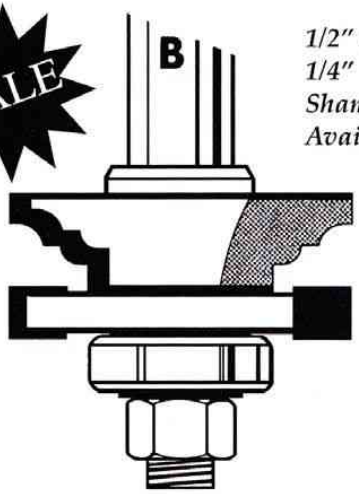

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Note 2: Profiles variable by raising or lowering bits.

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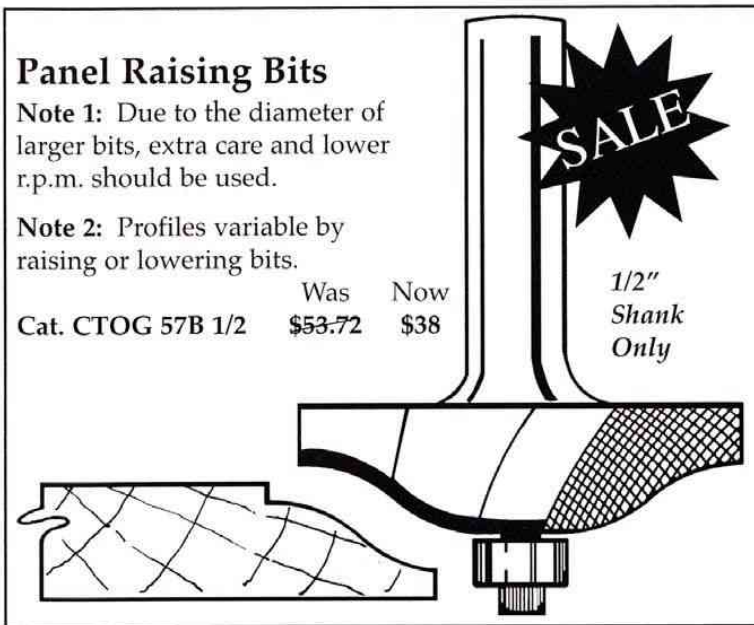

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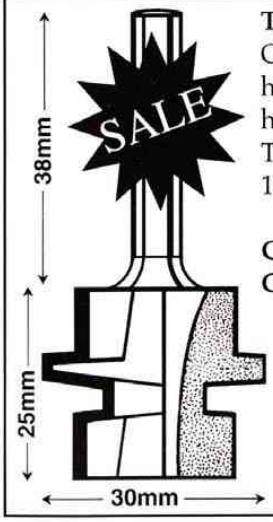

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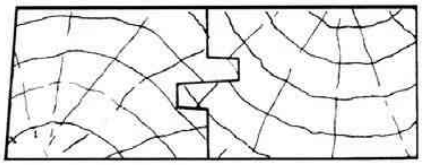

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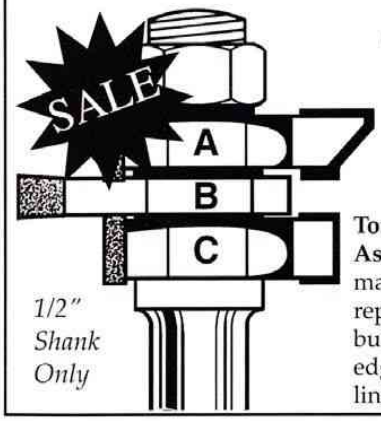

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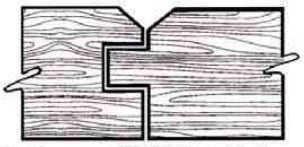

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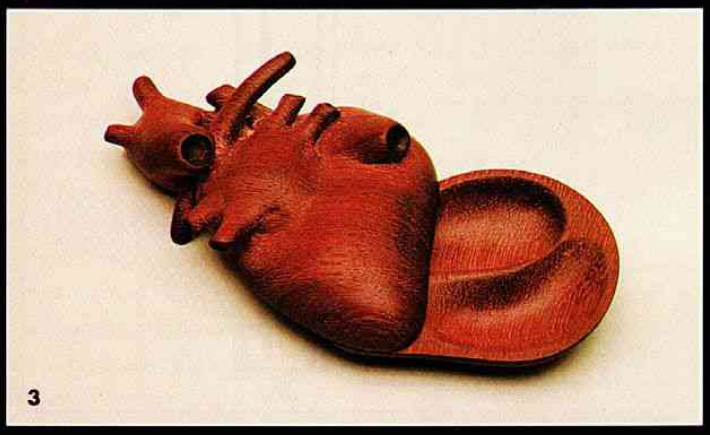

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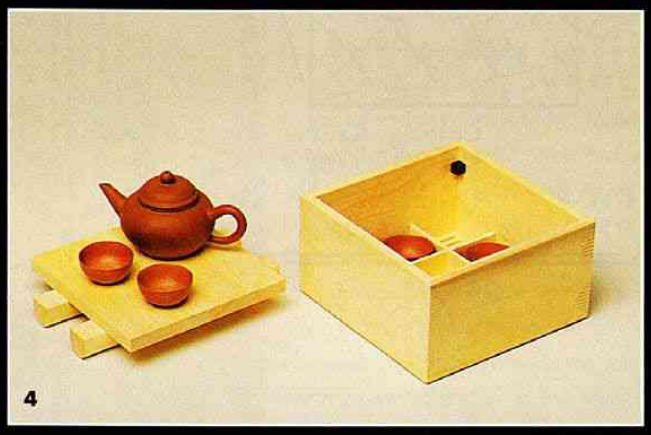

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THE BOX AS CONTAINER

Canberra School of Art Gallery, May-June, 1996

Reviewed by Michael Gill.

Photos: Johannes Kuhnen

This is an exhibition which carpets its space like an earthy Oriental rug—very low plinths in soft grey squares and oblongs, patterned with polished wooden pieces of many shapes and colours. This effect of the Turkish bazaar is unusual, pleasing, inviting; the idea being to entice viewers into squatting down and engaging more intimately with the boxes.

It works beautifully, especially for those exhibits with a powerful plan view, but I find myself on my knees with my ear on the ground trying to catch the details of Greg St John's *Metronome* which, like two or three other major works down here, has been designed to be seen and used in elevation. My twingeing knee and my whingeing bench-worker's back heave a sigh of relief as I make for the wall-mounted work and for those on waist-high pedestals.

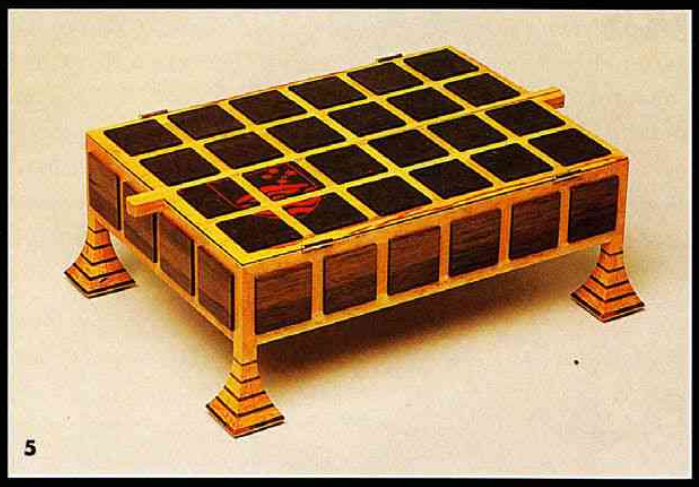
This exhibition is a rich and complex mix of strongly personal works—you run the gauntlet, from Simon Ramsey's impassioned cry from the heart, *Face The Storm*, to Mark Woolston's supremely elegant *Box For Fan 2*. Simon places before us something seldom glimpsed in woodwork exhibitions—his insides. His wall-mounted display-case is more a window on the soul than a box—a wing, torn from a drowned seabird by the tempest is pegged out on tortured poplar-burl veneer. Bleeding gold letters are scratched in the wood, forming themselves into a shred of verse which winds itself into incoherence. The frame twists itself away from the standard right-angle through painfully tight laminations and Simon's cathartic work leaves you exhausted and challenged.

Nearby, the slender huon pine wings of Woolston's fan-case are waiting to fly you to the moon. And it was at this point that the hoon rose up in me and, ignoring the polite 'Please Do Not Touch' signs scattered about, I fiddled shamelessly with Mark's slats.

The fullest appreciation of the poetic precision and delicacy of this piece lies not simply in viewing it as a frozen tableau, but in the feel of those finely-sliced wedges of wood, the sweep of their circular path and the soft, resonant 'clack' as each fin finds its niche and is drawn home and held by mysterious forces.

The Box As Container is a family exhibition—the family of the Canberra School of Art's Wood Workshop. Each of the twenty invited participants is either a child of the workshop or an uncle or auntie. Some are still students there, while others cut the cord well over a decade ago. A good handful (the uncles and aunties) are past and present lecturers.

The exhibition's curator is the workshop's patriarch, George Ingham, who set the theme of the show 'The box as container', wherein '...the contents will be as important as the box itself'. His invitees have responded eagerly to the brief. Ingham's influence over students, ex-students, colleagues and fellow-sufferers is profound. He hovers, disembodied, just behind your left shoulder as you work, nodding almost approvingly as you pull off something inspired and, then again, shaking his head sadly as you attempt to cobble together some piece of glib nonsense.



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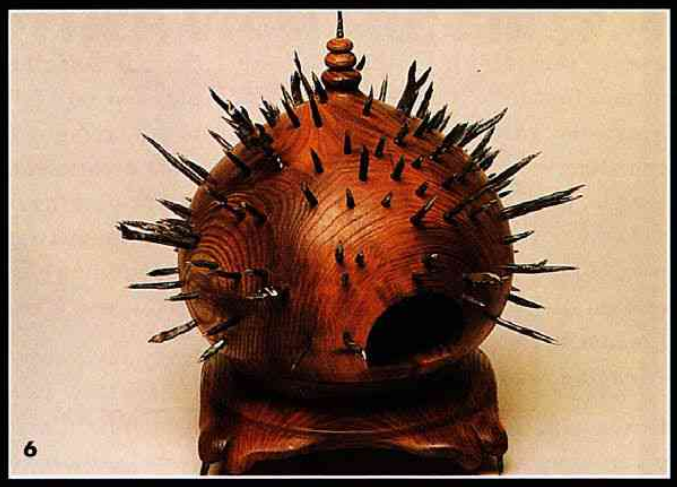

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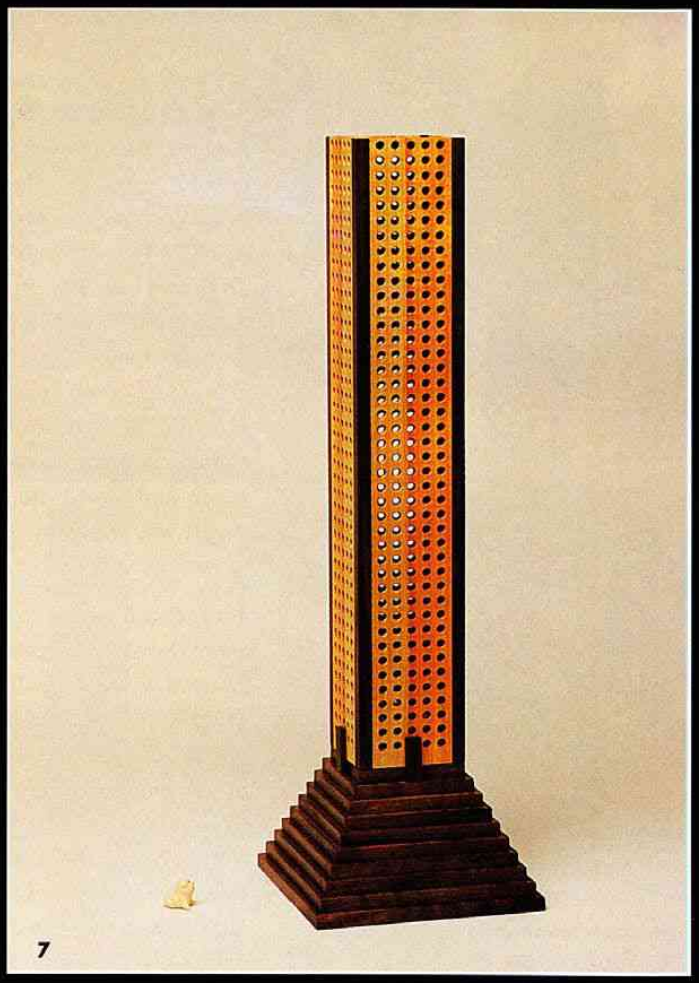

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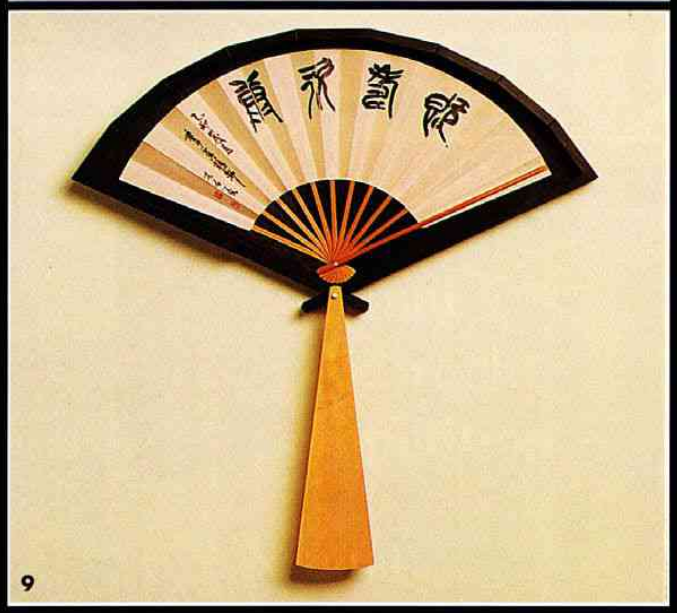

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This influence is palpable across the broad range of work in this exhibition—by no means imitative or duplicative—but you can feel it and smell it in each piece somehow. It has squeezed that extra drop of commitment and effort from every maker. Thankfully, there is an absence of Krenov clones, Ruhlmann rip-offs, Makepeace make-overs, Peters plagiarists, Malouf look-alikes and pseudo-Starcks. There are, of course, whispers and echoes of these and many others but

1 ***Arrow Case*****, NZ White Pine, European ash, arrows. George Ingham.**

2 ***Face The Storm*****, blackwood, poplar burl, gold leaf, perspex, bird's wing. Simon Ramsey.**

3 ***Sacred Heart*** **(Curly's Pill Box) purpleheart, pills. Matthew Harding.**

4 ***For Tea*****, huon pine, Chinese terracotta tea set. Pru Shaw.**

5 ***Presentation Box for ANU Commemorative Book*****. Saffron heart, corduroy, tamarind, angophora sp., deerhide. George Ingham.**

6 ***Temple For A Sacred Cow*****, elm, oak, forged steel, metal. Marc Lewis.**

7 ***Babe Considers a Career in Merchant Banking*****, Qld walnut, red ash, plastic pig, money. Lyndall Kennedy.**

8 ***Box of Fools*****, reclaimed Australian red cedar, ebony, peruvian pyrites, silken string. Chris Matthews**

9 ***Box For Fan 2*****, ebony, pine, fan. By Mark Woolston.**

The 'box' has been expanded to embrace the display cabinet, the picture-frame, the work-box, the games-chest, the cased book, the port, the canister, the caddy, the coffin, the temple, the time-bomb, the reliquary, the quiver, the medicine chest and the money-box. Somewhere in the depths of them all lies the spark of the *Guardian Ingham*, the brooding presence of the *Avenging Ingham*.

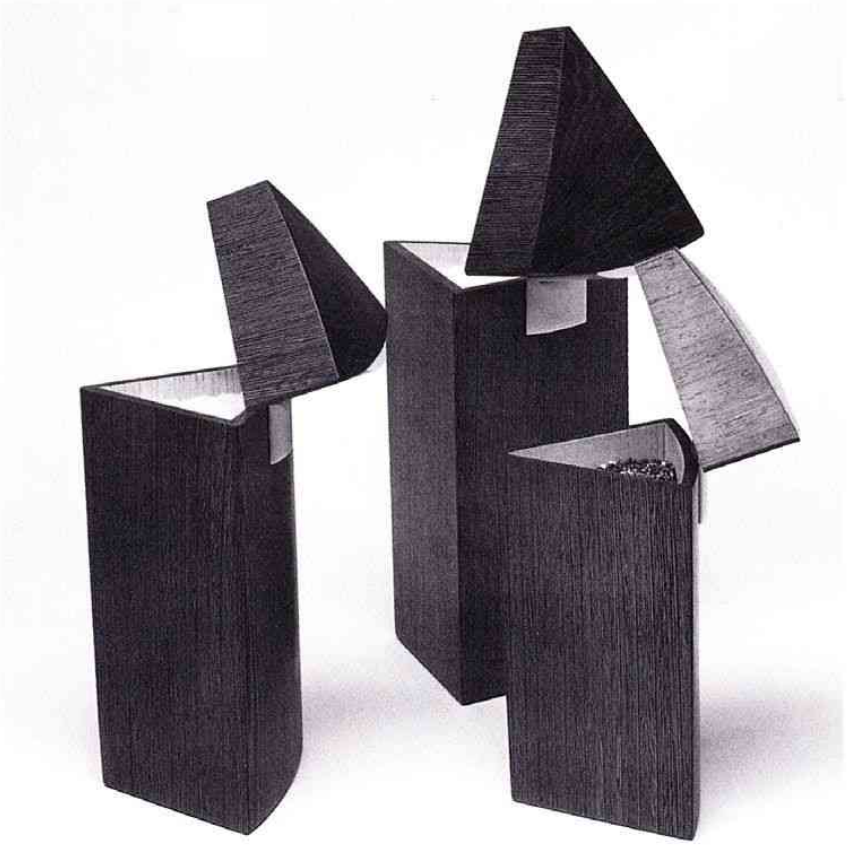
Boxes with lids and covers and drawers are kinetic sculptures—performance art if you like and are only half-alive when static. Without a little illicit fondling I should never have uncovered the lovely details of Pru Shaw's superb *For Tea* or cracked the combination to Lyndall Kennedy's beautiful *Wall Street Piggybank*. I should never have had the pleasure of pricking my fingers on the lethally fine steel points of Marc Lewis's gorgeous *Temple For A Sacred Cow* or reached in gingerly to prod the magic metal moo-ie in its cosmic stall.

A hands-off exploration of Mark Woolston's *Gallileo's Boxes* would have deprived me of the feel of those tiny drawers full of feathers, river oak cones and ball-bearings, the gentle spring in the long, black legs of one and the drunken, staggering stability of its neighbour.

Chris Matthews's *Box of Fools* is a piece of theatre that demands presentation on an appropriately opulent stage. The silk cords must be slowly and deliberately unwound, upon which the cedar shell suddenly falls away to reveal that spectacular cluster of pyrites rising on pillars of ebony into the lime-light.

In Pru Shaw's very fine *Writing Box* there is something strongly ceremonial and satisfying about un-packing it and laying it all out, something almost architectural in the re-stacking and re-packing of its wafer-thin compartments and trays, like a set of Sunday best building blocks in wenge and fire-wheel tree.

How could you possibly keep your hands off Matthew Harding's *Sacred Heart*? It's purple, it's wood, it's carved, its lid swivels, it's an organ, it's irresistible.



***X, Y and Z*, wenge, ash veneer, plastic, rices, by Ian Gutheridge.**

The most successful features of some boxes are hidden unless played with: to drop the drawbridge door of Mary Jean Vickers's *CD Cabinet* you have to explore until you find her dove-tailed spring-catches and press them to bring the piece to life. David Upfill-Brown's *Ndoros* needs you to push his single drawer right through the carcase to understand that it has no official front or back.

There are boxes here whose workmanship is staggering. There are those whose spirit and sincerity are breath-taking. Here and there it seems the twain have met. One or two are rushed and raw or, conversely, have gone stale in the making. Some are experiments, only slightly more hit than miss; staging-posts on the way to somewhere else. Most contain a lot more thinking than slogging, more heart than craft.

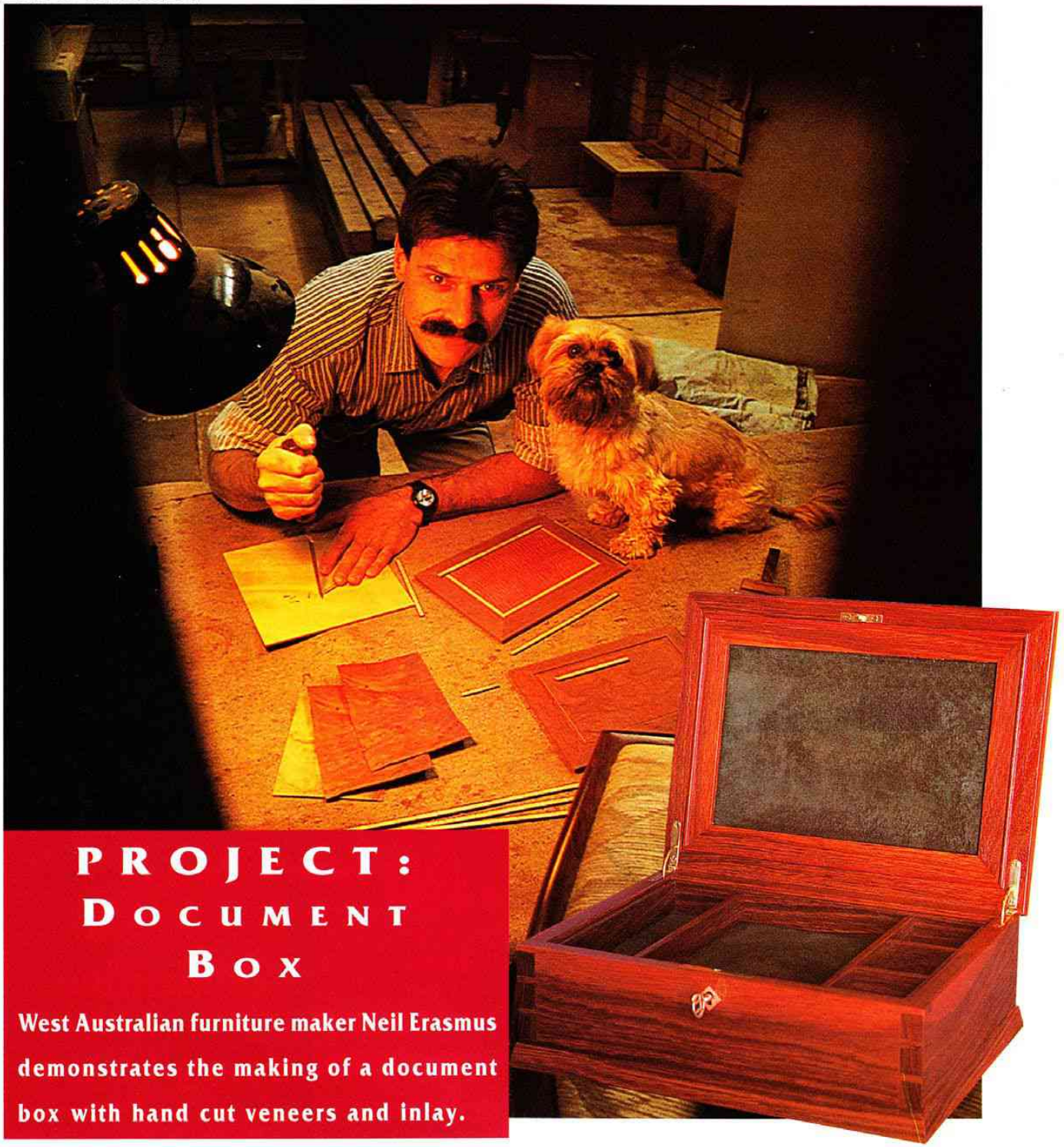
Because how bloody seriously must we designer-woodworkers keep taking ourselves? Working through the night, bandaging our finger-tips when the skin is sanded down to the meat and wrestling ceaselessly with that arch-boogie-man-from-hell, DESIGN. And just when you are bowed down by the deadly-earnestness of it all, when Profundity has you by the throat and Truth has its bony knee in your groin, you come upon a work of wit and charm, a piece with grace and subtle humour, and it restores to you the will to live.

You catch sight of Steve Davidson's light-hearted scattering of wooden buttons across the lid of his *Button Box*. You get a glimpse of Jonathan Everett's subversive, mesh-sided suitcase with his daggy old straw hat and suspect underpants exposed inside. You discover those wild, striped, medieval stockings warming the feet of George's commemorative book box and you're smiling again.

Luckily for us, there's so much more to fine woodwork than sharp tools and tight joints.

Michael Gill is a lecturer at the Canberra School of Art's Wood Workshop. He and partner Christine Payne run 'The Happiest Boy in the World School of Decorative Arts' in their North Canberra home studio/workshop.

By Neil Erasmus



PROJECT: DOCUMENT BOX

West Australian furniture maker Neil Erasmus demonstrates the making of a document box with hand cut veneers and inlay.

How fortunate we Australians are living in an environment whose immense diversity includes countless timbers with hues, textures and grain patterns unrivalled anywhere on the planet. Most of us don't need to look far to discover beautiful timber.

Traditionally box makers, like musical instrument makers, have used two or more contrasting timbers to create a visually pleasing result. Adding value to forest floor or fallen timbers is for me a very fulfilling, not to mention profitable, exercise with most of my boxes being almost entirely made from timbers sourced in this way.

With so much detailed work this is a very intense box to make. Don't however, take the attitude of 'I'll give it a go and see how it turns out'. If you can create attention to detail in your mind it then becomes a much easier task to translate that image into its physical counterpart. A ritual of intense visualisation is all it takes. I use these principles in all my design work, only ever putting pen to paper for the benefit of my clients.

Equipment

A circular saw, bandsaw, planer and thicknesser are the only heavy machines required. Hand tools needed include a fine-toothed dovetail saw, coping saw, cutting gauge, a full set of chisels (including 1/8"), square, small scratch awl and several quick release clamps. You will also need an electric drill and a small router and bit for the inlay.

Materials

All measurements are listed by length, width and thickness.

1 One rough sawn piece of hardwood (jarrah or blackwood are ideal) for the carcase, lid, plinth, tray and lid corner keys. All parts are obtained from one piece: 930 x 100 x 38mm (all minimum sizes) *or* dressed 930 x 90 x 30 or 40mm.

2 2 leaves of veneer for the lid: 200 x 135 x 0.6 or 1.0mm (depending on whether you cut your own veneer. Note: includes excess for trimming).

3 1 piece MDF 200 x 135 x 6.0mm.

4 1 piece plywood for tray base, preferably with face veneer in same timber as box carcase: 230 x 165 x 4mm

5 1 piece camphor laurel for carcase base 240 x 170 x 5mm

6 1 piece inlay 700 x 6.35 x 1.5mm.

7 1 pair fine, 25mm solid brass hinges.

8 3/8" x 2g screws to suit hinges, lock and strike plate.

9 1 fine, solid brass box lock.

Cutting List

All measurements exact finished sizes.

1 *Hardwood Carcase (74 x 13.5mm)*
2 @ 250.5mm (0.5 oversized for flush sanding of through hand cut dovetails)
2 @ 185.5mm

2 *Lid Frame (mitred & keyed 34 x 13.5mm)*
2 @ 254mm (dock to oversize at 262mm)
2 @ 189mm (dock to oversize at 193mm)

3 *Plinth (15 x 7mm. Mitred and glued into rebate at base of carcase)*
2 @ 258mm
2 @ 193mm

4 *Tray (main frame mitred and keyed, dividers butt and dowel jointed)*
2 @ 222.5 x 25 x 5mm
2 @ 157.5 x 25 x 5mm
2 @ 147.5 x 19.5 x 5mm
2 @ 46 x 18.5 x 5mm

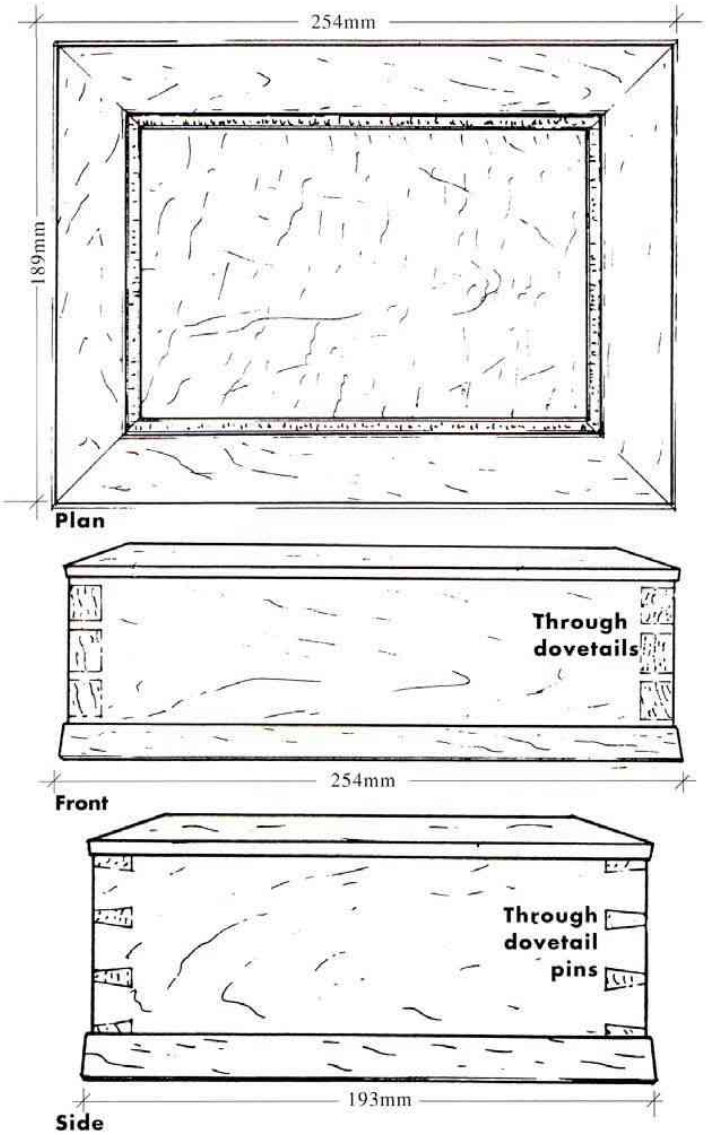
5 *Tray Support Posts*
4 @ 40 x 4 x 4mm
Items 1-5 are cut from 930 long x 100 wide x 38mm thick section. see diagram over.

6 *Lid Panel (hand veneered MDF)*
1 @ 197 x 132 x 8mm (includes 1mm oversize for sanding to fit)

7 *Base Panel (camphor laurel)*
1 @ 234 x 166 x 5mm

8 *Cross Band Inlay (keep in long length until ready to mitre)*
2 @ 197 x 6 x 2mm
2 @ 132 x 6 x 2mm

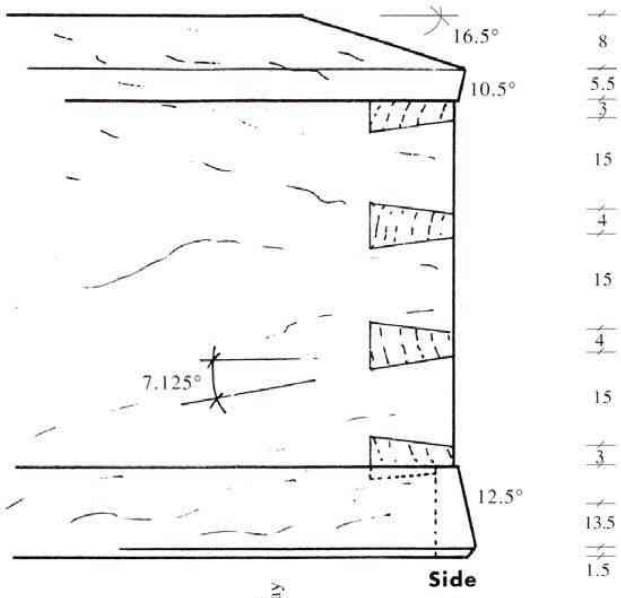
9 *Plywood Tray Base (glued into rebate at base of tray)*
1 @ 219.5 x 154.5 x 4mm

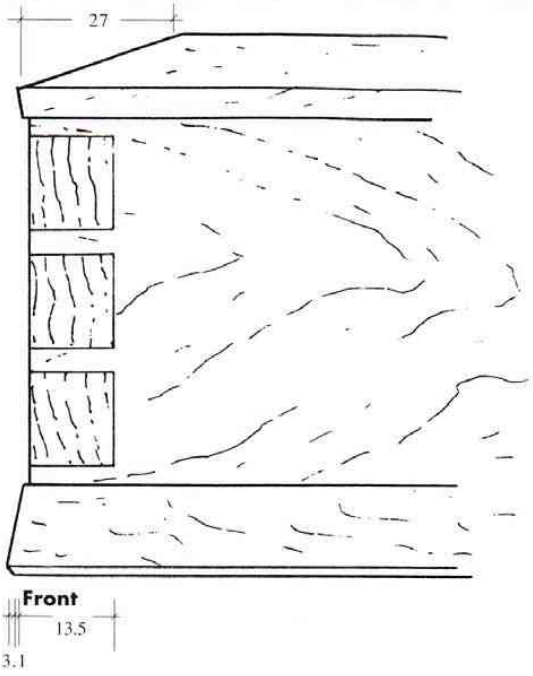


Preparing The Veneers

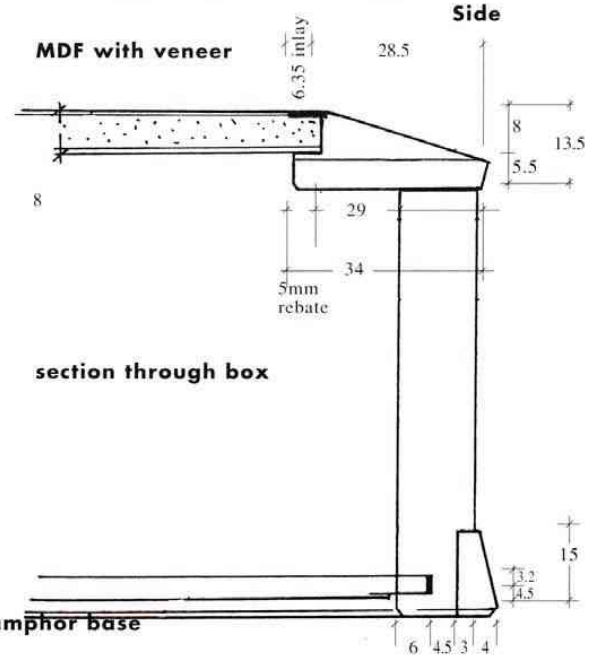
Choose and prepare a flat face on an interesting piece of flame or curly timber. I like to use mallee roots or jarrah burls. To cut veneer accurately you need a well set up bandsaw. Fit a sharp 6tpi by 5/8" blade to your band saw and tension it till you can hear a sharp twang when you pluck the stationary blade. *Don't over tighten.* Coarser and larger blades will perform much better when resawing larger pieces of wood. Carefully adjust all thrust and guide bearings, so that the blade is well supported.

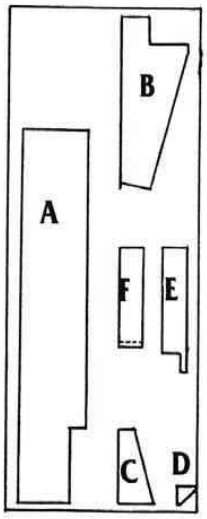
Plane an edge on a piece of scrap hardwood about 500mm long x 25-50mm thick. Scribe several parallel lines to this





end grain view of 930 x 100 x 38mm section





Orientation of Carcase Parts:

A Main carcase
B Lid frame
C Plinth
D Tray posts
E Mitred tray
F Tray dividers

(Drawings not to scale)

edge. Turn the machine on and carefully freehand cut down the very middle of one of these lines keeping the planed edge on the rip fence side of the blade. You will notice that in most cases you will need to 'crab' the piece of timber through the blade. This is caused by blades that don't have an equal tooth set to both sides of the blade.

Once you have established a constant angle to the cutting, hold down the piece of scrap firmly while switching the machines off. This angle is the angle that the fence needs to be set to. You will now be able to cut very thin slices of veneer against the fence.

If your block of wood is already quite thin I would suggest that you hot melt glue a piece of scrap onto the waste side to keep your fingers safely away from the blade. Also make sure that your bandsaw has a neat small slot through which the blade passes at table level.

After setting the angle of the fence to suit the natural cut of your blade, bring the fence up to the blade and fine tune its vertical angle to that of the taut blade. After correct adjustment, set the fence to about 1.5mm from the blade and bring the upper guide assembly down to within about 5mm of the piece of timber you're about to cut, and tighten.

Now you're ready—switch on the machine and cut your veneers one after another. Keep adequate hand pressure against the fence and move the wood slowly through the blade. Let the blade cut comfortably. By keeping a constant feed speed you will ensure that you keep the block flat. You should have a very fine finish to your veneers and therefore should not need to sand the glue faces.

Using a urea formaldehyde glue (epoxy glue will stain and PVA will creep), press down the veneers to both sides of a piece of 6mm MDF. Clamp and leave overnight. Sand both faces smooth after removal from clamps, but don't final sand at this stage.

MACHINING

1 Rip 2 pieces 100 x 18mm or so from the piece of 930 x 100 x 38mm hardwood (I use the bandsaw). I would advise that these pieces be left to stabilise for a day or so before further machining.

Plane a face and an edge on each piece, then thickness plane one piece for the carcase sides at 74 x 13.5mm and the other to 85 x 13.5mm for the lid, tray, plinth and tray support posts. Take the latter and arris one corner with a 4mm chamfer, sand and rip off in two cuts the posts on the circular saw, setting the fence and blade height to 4mm (part D).

2 Now set your rip fence on the bandsaw to rip off the lid parts at 36mm (part B), and re-edge the remaining piece into a 27mm strip. Saw this for the tray and a 17mm strip for the plinth (parts E and F). Take the tray strip and rip it in two halves, taking one and docking it in two equal lengths.

3 You are now ready to thickness and mould all these parts to their final sections as listed. Cut all rebates on the circular saw or router then machine all angles to the lid and plinth parts. You can make special angled support jigs to rest on your thicknesser table to plane these angles, or you can scribe and hand plane down to the line.

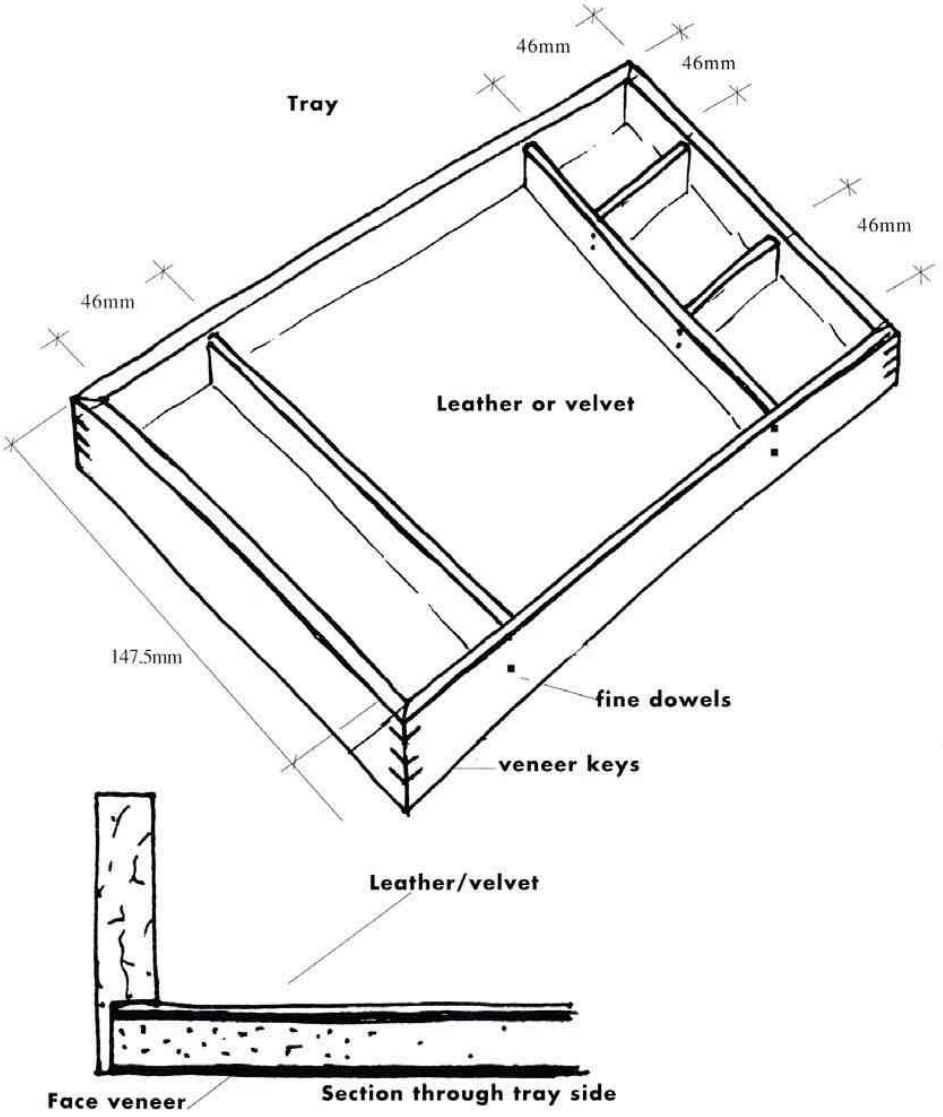
4 Dock all individual parts slightly over length ensuring that each piece is marked for position.

5 Mitre the lid frame parts and glue up with PVA. Place on a piece of melamine and, using hand pressure on each joint, rotate each mitre in turn until all joints are tight. Leave for an hour or two to set.

6 Cut all carcase parts to exact length and scribe, using a sharp cutting gauge, for dovetails and pins. Scribe faces and edges to the sides but only faces to the front and back pieces. Mark out dovetail pins on the front and back, and with a dovetail saw cut between these lines to the scribe mark. Use the coping saw to cut out most of the waste, then with a sharp chisel cut to the scribed line.

7 Carefully position each set of pins over its corresponding set of tails, and mark these out using a small sharp awl. Cut out between tails as detailed before. Now slightly arris all inside leading edges to facilitate ease fit.

8 Cut a groove 6mm deep, one circular saw kerf width on all inside faces for the camphor laurel base.



9 Trim the camphor base to size, final sand both faces, then rebate the underside edge for a snug fit in its groove. I use the sawbench with an MDF panel for support, however a router or rebate plane will suffice.

10 Sand all inside faces of the carcase parts, taking care not to sand the pins. Apply glue to all dovetails and assemble the carcase, not forgetting to slide in the camphor base. Tap firmly home, check for squareness and flatness then leave to set.

11 Cut slots into the corners of the lid frame for keys (use a dovetail saw). Glue in veneer keys, allow to set, then trim flush.

12 Trim the veneered lid panel for a snug fit into the lid rebate, and glue in place (with urea formaldehyde) using clamps if necessary.

13 Clean up the rebate to the base of the carcase, carefully cutting and chiselling the excess dovetails. Mitre all plinth parts to fit, glue in place using masking tape for positioning.

14 Sand the lid face flush. Set up your router and fence with a bit the width of your inlay (about 6mm here). A light duty plunge router is ideal for this task. Cut a groove about 1.5mm deep overlapping the join between panel and frame, being mindful of the position of the router at the start and finish of each cut. Carefully clean out the corners with a sharp chisel.

I make up my own bordered cross-banding using, amongst other timbers, ebony and river banksia. You can buy this from a timber specialist, or machine a plain strip about 1-2mm wide.

15 Mitre the corners to the inlay strips so that each strip is marginally over length to allow them to be sprung

fit into their grooves. I cut the mitres with a sharp chisel and a special sanding jig to get a perfect fit. Glue in firmly, fitting the mitres first then pushing in the centre.

16 To fit hinges:

a Fit lid onto base and mark hinge positions.

b Scribe hinge depth and inset. Don't forget lid overhang.

c Chisel carefully to required depth.

d Number hinges and their position on base.

e Fine tune fit of lid to base by either filing edge of hinge or increasing inset.

f Mark screw holes with pencil and mark centres with awl. Bias these centres very slightly toward inside of box.

g Drill pilot holes to exact depth based on screw length, taking great care not to drill through the lid (trim screw length if necessary).

h Drill clearance hole to precise depth. Don't over-drill as screw will not hold (or use tapered drill bits).

i Sand visible parts of hinges and screws with 600grit sand paper and buff with a rubbing compound.

j Carefully fit hinges with spare screws, saving polished ones for final fit.

17 Fit lock to carcase and strike plate to lid. *Note: this can be done prior to assembly*. I have been unable to locate a suitably small key hole escutcheon, therefore I fit a small diamond-shaped piece of river banksia with a key hole for this purpose.

18 Sand, mitre and cut all the tray parts to length. Glue up the main tray parts and key the mitres with a dovetail saw and veneers. Line the plywood base in leather or velvet using thinned PVA or contact glue then glue this into the tray rebate. Fit the dividers in place and drill holes into them through the sides. Fit thin slivers (tiny dowels are unavailable) of wood into these holes to hold them in place. *Note: it is best to polish all the tray parts before assembly so as not to soil the base.*

19 Cut to length 4 tray support posts and carefully glue in place. The tray should rest on these without protruding above the sides of the box.

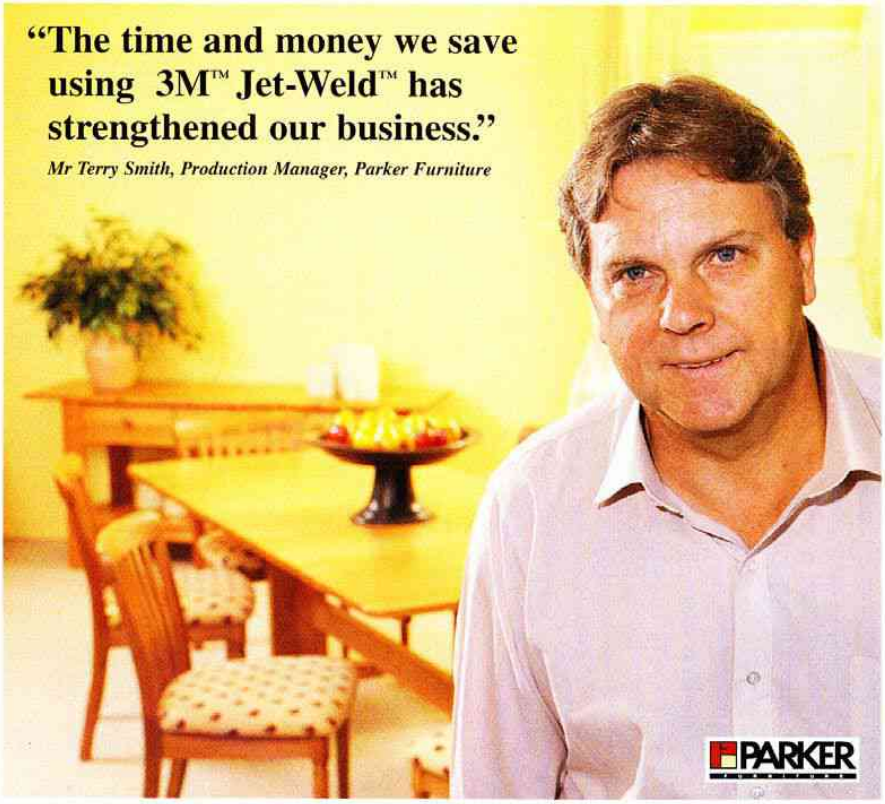
20 Remove all hardware and, using a cork block, sand all parts of the box, progressing through grades 180 to 600, ensuring that corners remain crisp but not sharp.

21 Remove all dust from the grain and under a good source of light check for any imperfections. You are now ready to polish your box in any finish you like. We have found that a highly figured lid needs to have a buffed finish to show off the grain. We use a Danish-type oil containing tung oil. Replace all hardware and stand back...

Neil Erasmus is a furniture maker and lectures in woodworking at the School of Wood in Dwellingup, Western Australia.

Suppliers

Tapered drill bits: BJR Australia (043) 966 112
Brass hardware: Carba-Tec 1-800-658 111
Garrett Wade: 1800 337736
Fine gauge screws: Sachys (03) 9803 2370
For a full listing of veneer suppliers see Wood Review #11, pages 62, 63



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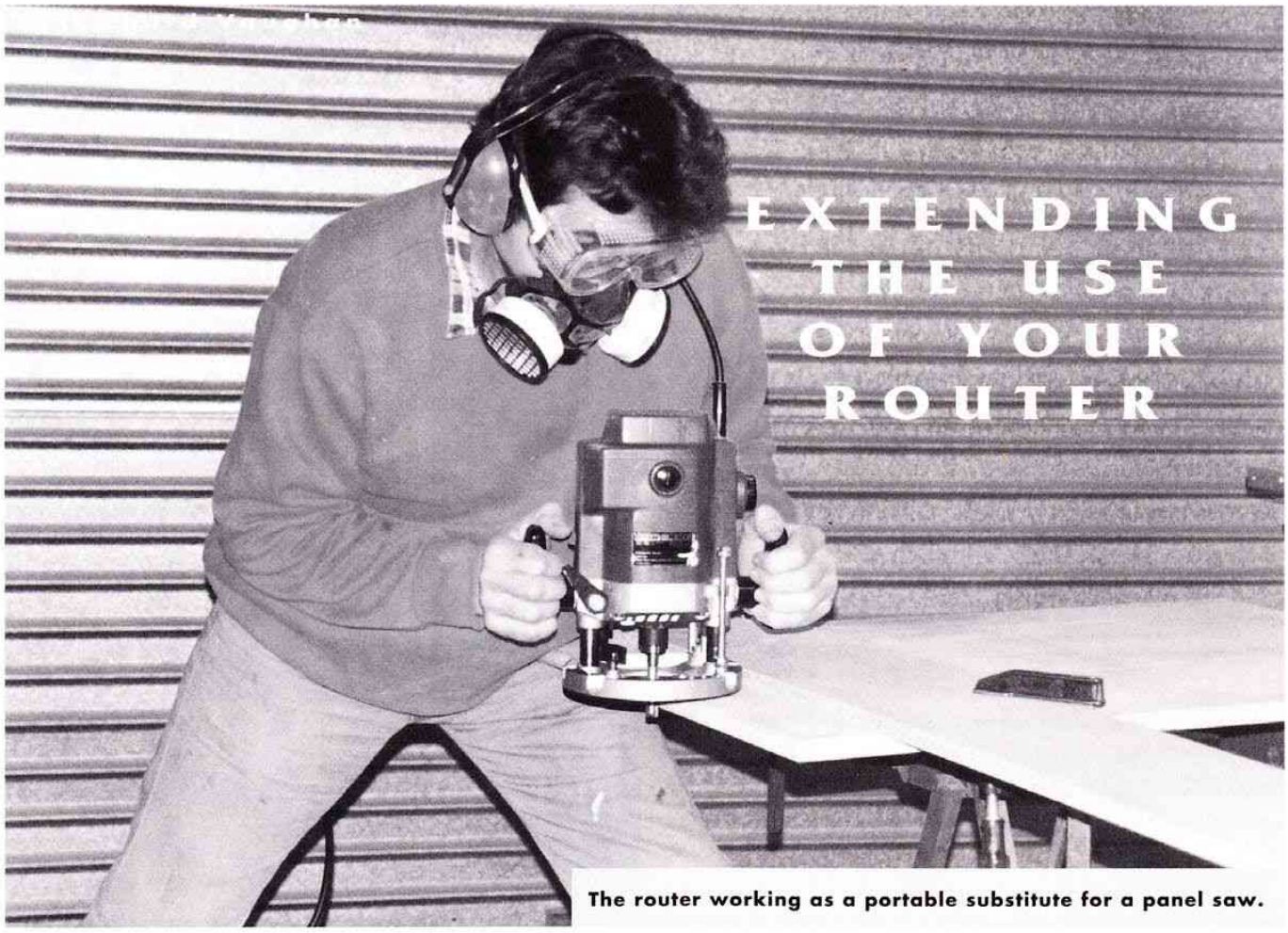

EXTENDING THE USE OF YOUR ROUTER

The router working as a portable substitute for a panel saw.

Most woodworkers have routers but make only limited use of them. Richard Vaughan begins the first of a two part series which describes some simple ways to extend the versatility of your router.

The router can do so much more than mould a table edge and house a shelf. In this article we'll look mainly at using the router for various operations. In the next issue we'll focus on jigs—these are the key to a pretty well limitless range of possibilities.

Which Router?

The original hand held router is credited to the inventiveness of Mr R.L. Carter, a New York patternmaker during World War I. The depth adjustment was by means of a threaded ring on the body of the tool.

This type still exists but I highly recommend the greater versatility of the plunge type. I'm very much in favour of underworking generous power rather than overworking meagre power. The little extra you pay for extra power, preferably with soft start and variable speed, is well and truly justified in a tool with such broad usage.

The trimmer is a scaled-down version of the router. If you're only using smaller bits and making lighter cuts it will suit just fine. Otherwise I'd suggest you acquire one as an additional tool to extend the convenience of the bigger one.

I have three routers. My long time workhorse is a Hitachi TR12 (2hp and 20,000rpm) and most of my jigs are built for it. The Hitachi M12V is usually fixed to the router table where its 3hp/2300 watts of grunt and variable speed are ideal for heftier bits. It is recommended for example that a 65mm bit should have a maximum speed of 16,000rpm.

The 450 watt Makita trimmer sits in my hand as comfortably as a beer can, and is as easily controlled for delicate work as a sharp chisel. It precisely cleans out the waste on lap and through dovetails, halving joints and when fitting locks and hinges. I also use it for inlay and relief work as well as for more detailed edge moulding. It's not hefty but goes at about 30,000rpm, so you should limit its use to smaller lighter bits under 20mm diameter.

Basic Care of the Beast

Having the tool in sweet working order is fundamental. I'll assume that if yours is not a plunge model you are poised to upgrade.

The plunge action must be smooth and easy. The bushings for the plunge shafts will probably depend on what you pay for the router, but the shafts must be cared for, on all of them. The slightest ding, most likely from a slip of the wrench when changing bits, should be smoothed off straightaway as it will catch in operation and ultimately damage the bush. Use a very fine file to carefully remove only what is proud of the shaft so that it slides effortlessly again. When changing bits I drape a thick cloth over the shafts to avoid damage.

Periodically take the base off and use a compressor or lung power to clean dust and grit out of the body where the shaft goes. A light wipe over the shafts with an old, and therefore less abrasive, plastic scouring pad and paraffin wax works well. When it's reassembled invert the router, puff some graphite round the bushes and pump the base several times to spread this dry lubricant. I don't recommend using any oil as it tends to gather dust and clog the action.

Basic Care Of The Bits

As Philip Ashley pointed out last issue the bits are the real hard workers, so a couple of do's and don'ts for router bits could prove useful before we get to looking at uses.

Have you noticed that there is usually a slight flaring where the shaft joins the head? When you are inserting the bit make sure that this flare is clear of the collet or the collet may be stretched into a bell mouth and have an imperfect grip on the bit. In any case make sure the bit is not hard into the collet. Lift it a millimetre or so before locking it in, as the vibration from contact with the bottom may cause it to become loose or at least move out. Over-tightening will damage both shaft and collet.

Remove the bit from the router when you've finished, so that it won't stick from the corrosion which the heat encourages. Obviously you're not going to oil the shaft to prevent rust, but it is essential that both shaft and collet be kept clean to ensure a snug fit and secure grip. Take it easy with the abrasives here as you don't want to change the diameter or roundness of the shaft. Keep the head of the bit clean too as built up charred resins will retain heat and make the bit liable to burn the work.

I prefer to have my bits sharpened by experts, but as sharpness is essential I refresh them between times by carefully stroking the back of the cutting edges along the edge of my diamond whetstone. Be sure the back of the cutter is flat on the stone, and that you do an equal number of strokes for each cutter.

Safety First

Clear the work area. Have enough cable and nowhere for it to catch. As you're looking down on the router sitting on the workpiece the bit will rotate clock-

Top: Setting depth and width of cut for a butt hinge.

Above: Taking out the waste on lap dovetails. Note the extended fence.

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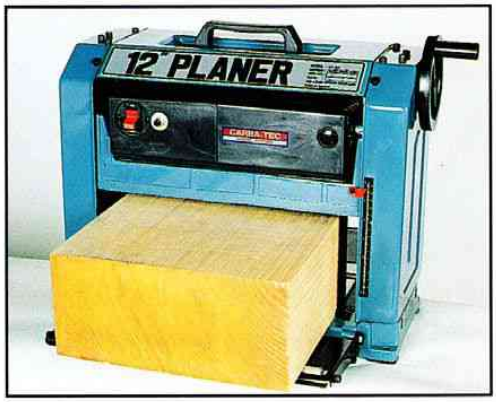

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Cutting Width	.308mm
Cutting Depth	.153mm
No. of Blades	.2
Max. Cut	.3mm
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Optional Stand **CT-318 Stand**	**.$81.10**

Freight add $30 per machine

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Motor	¾ h.p. 240V
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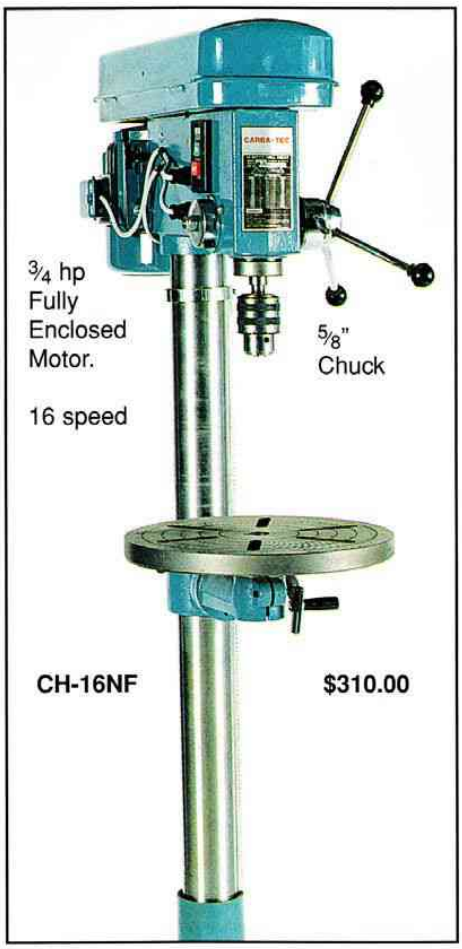

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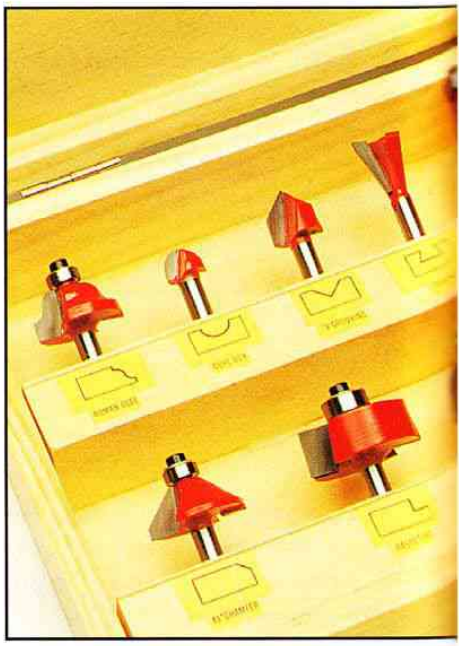

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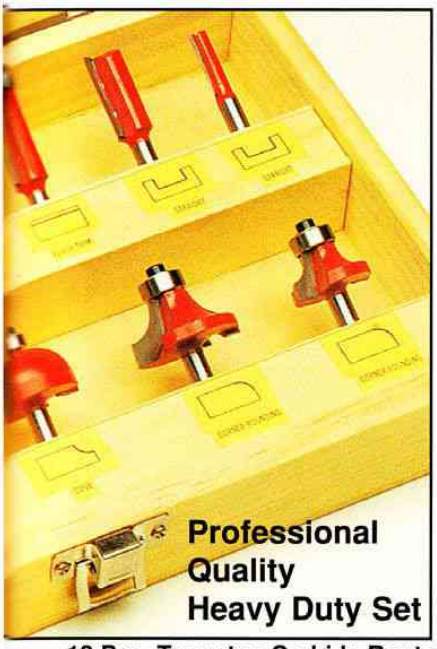

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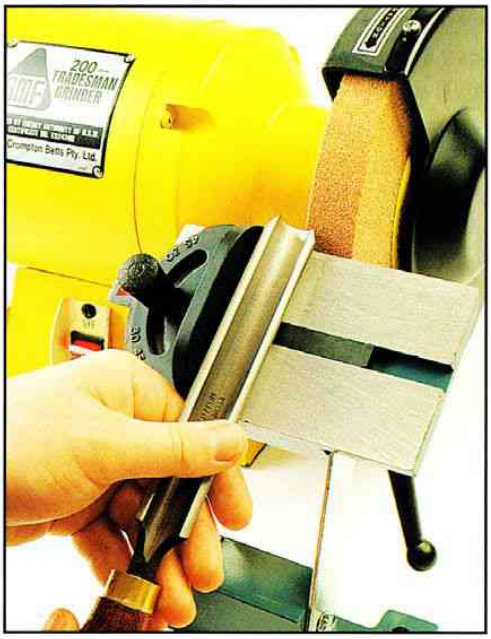

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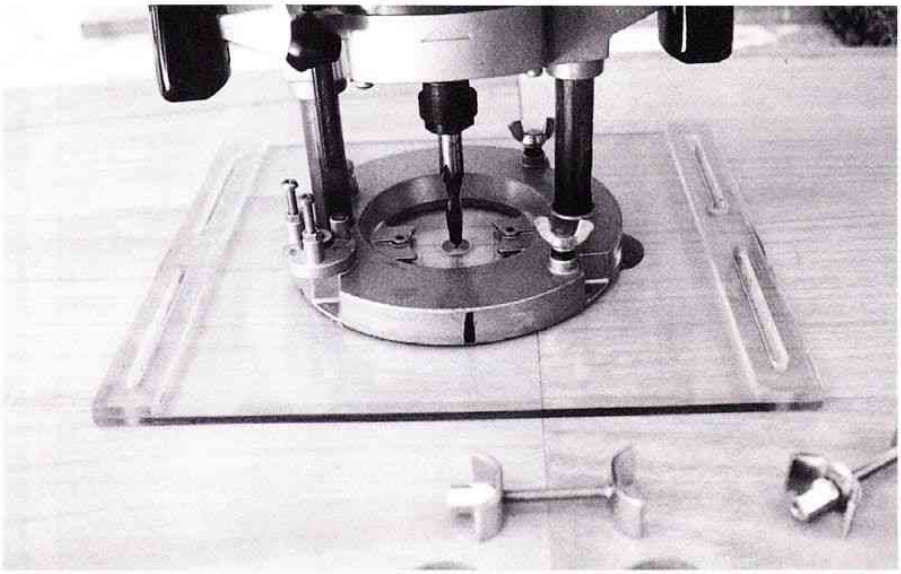
wise. Always make sure that it is the left-hand side of the bit which is doing the cutting when you are pushing the router. Use the right-hand side if you are pulling it toward you. It's startling the number of people who have got this wrong and had the router take off as if they had dropped the clutch on the Harley. This is not good for heart conditions—or the job.

Of course the workpiece must be firmly held down by clamps and I know you'll be wearing eye and lung protection. A fan blowing across the action really helps here, as it does in many other applications.



The holes were plunge drilled then the rims cleaned up for these joiners.

Getting Familiar

A neat way of rapidly getting a friendly relationship with your router is to freehand out shapes marked on a bit of flat board. Define various shapes with knife lines and rout them out. It only needs to be a couple of millimetres deep but work on cutting right up to the line. The trick is to use a stroking action, like peeling an apple rather than chopping out chunks. Sit on a stool and with both elbows on the bench you'll enjoy very precise control. You may even get ideas for a project where you could fill routered-out shapes, or letters, with coloured resin such as epoxy tinted with ochre.

Now To Work—Dovetails

Once you have your router functioning sweetly, and are comfortable with cutting to the line freehand, you can apply this skill to the removal of waste for joints or hinges

For through dovetails on denser woods it is usually quicker and safer to take out the bulk of the waste with a coping saw or bandsaw. In any case you will get a crisper result if you first incise the bottom with a knife and square, or with a sharp cutting gauge.

The pin of a marking gauge is more likely to tear than cut. I rely on the perfectly shaped tool steel (most are only mild steel) blade of Australian-made Colen Clenton gauges. When you use a knife or gauge you'll be less likely to cut a wrong line if you make several lighter passes rather than attempt a single heavy cut.

Use the standard accessory fence on your router to get a consistently clean inside line. If you extend the standard fence by screwing on a 10mm thick ply strip you'll have a much better bearing surface and resultant control (see photo p.19). You can keep the face of this fence slick with wax and scouring pad.

Hinges

When setting butt hinges, knife in the top and bottom of the waste by tracing the hinge held firmly in position, again using several lighter cuts. Use a square and knife to carry these cuts down the edge to the desired depth for the hinge so it doesn't splinter out when routing. Define the back of the hinge recess with the cutting gauge. It's a good idea to scratch some identification on the back of each hinge to be sure of getting it back into its rightful place.

The simplest way to set the depth of cut to suit the butt hinge or whatever else is going into the hole, is to invert the router, lay the item on the base plate and adjust the bit depth to it (see photo p.19).

Pierced Work

A plunge router works well for pierced work such as brackets for furniture or verandahs. Use the same action as for the relief work you practised on. Define the edges clearly, preferably with a knife, though you may want to highlight them with a sharp pencil. The secret is to not be greedy—take a little at a time, probably 5-10mm depth depending on the hardness of the wood and how easily it cuts. You can also plunge drill the waste out then define the edges.

There's no need to rush and risk a profanity when the router's speed is saving time by giving a clean finish so quickly. Go too slowly, however, and you'll burn the wood..

A Bigger Base

When you're doing pierced work or relief cutting or lettering you will find that a larger base plate really helps when the bearing surface of the wood is reduced by your routing. Find a plastics supplier in the phone book—they'll be able to cut you a piece of 6mm acrylic or polycarbonate about 300mm square. Polycarbonate costs more but is far tougher.

Unscrew the sole plate of your router and use it as a template for the screw holes (well countersunk) in the new base. Once it's fixed to the router use your smallest bit to mark the cutting centre. Remove the base plate and knife cross hairs to this centre (you'll see why in a moment). Refix the base, and

with a large bit, plunge a hole to comfortably accommodate subsequent uses.

The router can also serve as a very portable pedestal drill, for example to sink kitchen cabinet and barrel-type hinges, holes for wood plugs or a plumbing hole in a laminated surface. It is now that you'll be glad of the transparent base with its crosshairs so you can align easily and accurately with the pencilled X at the centre of the intended hole.

Standard router bits are made to cut along their length rather than at the end so be sure to choose an end-cutting type for boring holes. The up-cut spiral end mills work beautifully. To prevent the smooth router base budging into inaccuracy use several strips of that grip mat stuff, or strips of doubled over and glued fine sandpaper when possible scratches won't show.

Even with the variable speed wound right down you probably won't achieve the 6,000rpm recommended maximum speed for drill bits so if you can't get a router bit the exact size you'll simply employ your freehand skills to size the hole to a line.

Working With Panel Products

Working with manufactured boards can be less than gloatworthy if you don't have access to a panel saw. Except that by now I hope your mind is reaching for the router. You just saw a couple of millimetres outside the accurate line, clamp a straight edge to the workpiece and with one pass you can rout it to perfection. A pattern following bit with the straight edge on the line is the simplest.

If you don't have one of those bits yet it's just about as easy to use a standard straight cutter (carbide is necessary for the highly abrasive nature of manufactured boards). Clamp the straight edge the appropriate distance from the line and run the router against the fence, cutting in the right direction of course. I used to do a fair bit of on-site work and that trick saved me a lot of time. When cutting across the grain of veneer you may need to knife the line so there's zero chipping.

And the straight edge I hear someone ask? Well the factory machined edges of those boards are remarkably straight so just rip off a 200mm strip, or 300mm wide for 1.8 metres long and over. You may feel like sealing the edge with a quick brush of polyurethane then waxing it to extend its life and to help the router base move more smoothly. It's quick and portable and takes up less space than an Altendorf in the back of the car.

In the next issue I'll look at extending your router repertoire with some simple jigs, as well as a design for an efficient and very space economical router table.

WOOD NEWS

Harley Mania

Harley Davidson motorcycles have inspired a great deal of passion from enthusiasts over the years. We now have the definitive woodworking answer in the form of a series of models of Harley bikes made by South Australian woodcarver Roy Fowler of Gawler. Fowler's initial interest was in Formula One cars and one of his first models was a Jaguar XJR Silk Cut which was carved out of a solid block of jarrah—and later signed by Derek Warwick of *Le Mans 24 hours* fame. After making a whole series of car models (from fibreglass as well) which Fowler doggedly managed to get autographed by big names such as Fangio, Senna, Hunt, Mansell, Picquet and others, he decided to turn to Harley bikes.

The first bike took Fowler three to four months to make and nearly ended up in the rubbish bin. Figuring out how the complicated frame, bars, pipes and so on would fit together was a little like travelling a technical labyrinth. Everything had to be made out of wood (including the cables and wheel spokes) and be pleasing to the eye. Fowler claims it would have been easier if he'd had a scroll saw and lathe, but he managed with an old coping saw and a sharp knife!

Harley bike by Roy Fowler

The reception desk and cabinets at the head office of Scottish Shipowners & Managers at St Leonards, NSW have been constructed from turpentine and ash veneers from Briggs Veneers' extensive range. Briggs have successfully pioneered the slicing and peeling of numerous native species, many of which come from plantation resource. Phone (02) 9624 5000.

Fine Wood Awards in WA

The Fine Wood Industry Project, a non-profit membership association for professional fine wood designer/makers and craftspeople has found a major sponsor for a biennial showcase of what is predominantly a regional based industry. The inaugural 'Wesfarmers Fine Wood Awards' will be held in Perth and will offer a significant prize pool to entrants. Details from Jane Tillson on (09) 538 1395.

Stolen Timber

Adams Timber in Canberra have reported a recent theft of a considerable quantity of fine timber. The species taken included African bubinga in sizes of 75 x 150 at around 1700mm lengths, and Macassar ebony at 50 x 75 x 200 x 2300mm. Around twenty pre-cut turning blanks of different species were also taken. Adams continue to stock these species as well as a large range of local and exotic species from their Coldstream, Vic. (03) 9739 1255 and Canberra (06) 280 6467 outlets.

See The Light

Craftspace Gallery in NSW will present a selected exhibition of contemporary lights by thirty designers including John Smith, Leslie Wright, Marc Newson, Stuart Montague and Donald Fortescue from October 10 to November 3 at 88 George St, The Rocks.Call (02) 9247 9126.

Video Know How

The Woodturning Centre in Brookvale, NSW are making available a video of some of their products in action so prospective purchasers can make a qualified decision. Products featured are the Teknatool TL1500 lathe, the Nova Scroll chuck and Jaws and the Hiturn Sharpening Centre. Call (02) 993 86699.

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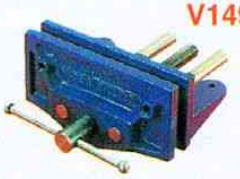

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have been made in Sheffield for over 75 years and are still the first choice of the professional craftsman.
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52.1/2ED	9"/230mm
53ED	10.1/2"/265mm

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53PD	10.1/2"/265mm

Woodcraft Vices are essentially smaller versions of the heavy duty types. These are plain screw vices, ideal for the young woodworker or home handyman.
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The **V150** is a portable version of the V149 which can be clamped to any convenient surface or fixed to the top surface of a bench.
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V175	7"/175mm
V150	6"/150mm

Cat. No.	Jaw Width
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WOOD NEWS

Arts + Industry

According to Graeme Coop, director of Arts + Industry's Furniture 96 event, Australia currently imports too much furniture and exports too little. 'Furniture is', he says,' an industry with enormous growth potential for Australia, and could rival the export prospects of our emerging processed food industry'.

Furniture 96 will be the sixth annual exhibition organised by Arts + Industry. Selected on the basis of design innovation and marketability from submissions from around Australia this exhibition aims to promote and publicise around 60 new furniture pieces to retailers, furniture manufacturers and the public at large. Call Graeme Coop (03) 9329 1972

Carve Your Future

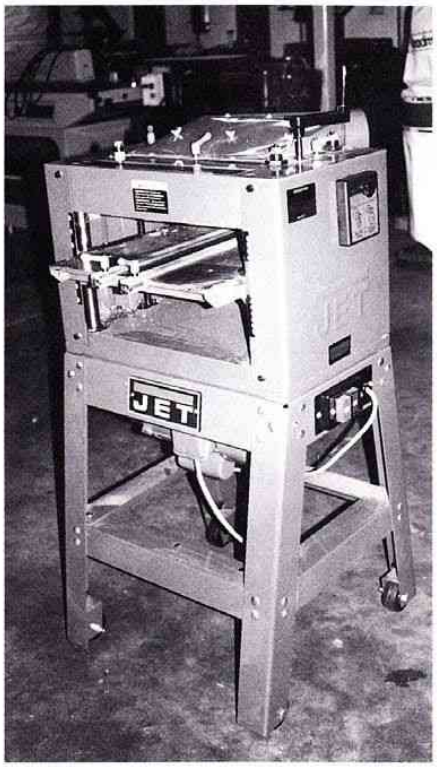
Malvern Machinery are now carrying the full range of Terrco Carvers and accessories including the K-Star Carver which is ideal for the individual wishing to start a part-time business at home. The Northstar Carver is a high production machine and is recommended for the small business wanting to carve large, heavy items such as doors, mantlepieces, plaques and furniture. Phone: (03) 9885 6104 or fax (03) 9885 9877.

LIGNA

Next year in Hannover, Germany, LIGNA and interHOLZ will take place from May 5-7, 1997. The World Fair for Machinery and Equipment in the Wood and Forestry Industries (alias LIGNA) is basically where its happening if you need to know about woodworking technology. In 1995 around 107,000 people from over 100 countries came to see the wares of 1,460 exhibitors. InterHOLZ is an international timber and forestry fair which runs concurrently and in 1995 achieved an attendance of 36,000.

Run Your Own Mouldings

If you have sufficient volumes of usage, moulding your own timber



section could be an attractive proposition. A 13" planer/moulder (above) by JET Equipment & Tools offers a cast iron table, two feed rates, adjustable rubber coated in-feed and out-feed rollers and is conveniently mounted on castors. Around 40 cutters are available. The machine sells for $1,150 plus tax . Nine cutters sell for $200 or $90 for 100mm wide moulder cutters. Contact Gregory Machinery for more information (07) 3844 4433.

New Cordless

Fein's new corner sander Accu MSX 315 is cordless! With its oscillating motion the lightweight but powerful tool sands in tight corners and comes with various attachments for sawing, polishing and scraping. The battery is interchangeable with other Fein cordless tools. Contact Fein (02) 9534 3533.

New Product Parade

This year's New Product Parade showcased furnishings from almost 250 Australian and New Zealand furniture manufacturers. Sunnyside Fine Furniture of Loch, Victoria won the *Excellence in Timber Finish* award (sponsored by Mirotone) and the award for *Excellence in Design and Manufacture of New Furniture Using Solid Timber*. Suncoast Kwila of Queensland and Design Mobel of New Zealand were runners up for the solid timber award. Wentworth Furniture of Victoria won an award for *Excellence in Design using Veneered Board* (sponsored by Panelveneer) which Sunnyside Fine came runner up for.

WinterFest 96

Last year Winterfest in Warburton, Victoria received the 'Australia Day Award for Community Event of the Year'. This year interstate craftspeople such as Richard Raffan and Ainslie Pyne joined local woodworkers to conduct four half day workshops and demonstrations. Despite less than favourable weather conditions, large crowds visited the festival. The exhibition attracted 140 entries competing for prizes. Prize winners were Will Matthysen (Excellence in Craftsmanship), Andre Drezga (Furniture & Cabinetwork), Andrew Potocnik (Woodturning), Graeme Parker (Carving/ Sculpture), Stephen Hughes (Exquisite Small Piece), Tony Ryan (Non-professional), Andre Drezga (Natural Feature Victorian Timber), Anthony Boerboom (Best New Entrant).

New Converts

Alternative Power Systems have released a new range of MMC converters. The MMC incorporates a three phase motor which establishes an artificial three phase supply independently of the driven machine load. Standard APS converters induce artificial three phase supply in conjunction with the motor. The new converters can operate more than

one motor simultaneously, have automatic capacitor selection, no minimum load, push button start and single phase ammeter to indicate single phase current level drawn. APS: (047) 82 6311.

Coffee Break Over

Panasonic have done away with the need for the 'coffee break' battery charge by coming up with an extra battery pack as standard equipment. Two 'Predator' series 12 volt drill/drivers with extra battery packs have now been released. Panasonic's Predators are roughly equal to a 500 watt electric drill and are far more convenient to use. With an extra battery pack continuous use is now possible.

The two new models differ by virtue of their charging systems. The EY6100EQKW has a high capacity 'E' type battery pack which gives 40% more work between recharging. The EY6100CRKW has a compact 'C' type battery which is lighter and designed to make installations easy. The new models have keyless chucks and a two speed 'planetary' gearbox for smooth power transmission. Call Panasonic on 132 600 for more information.

Tool Video

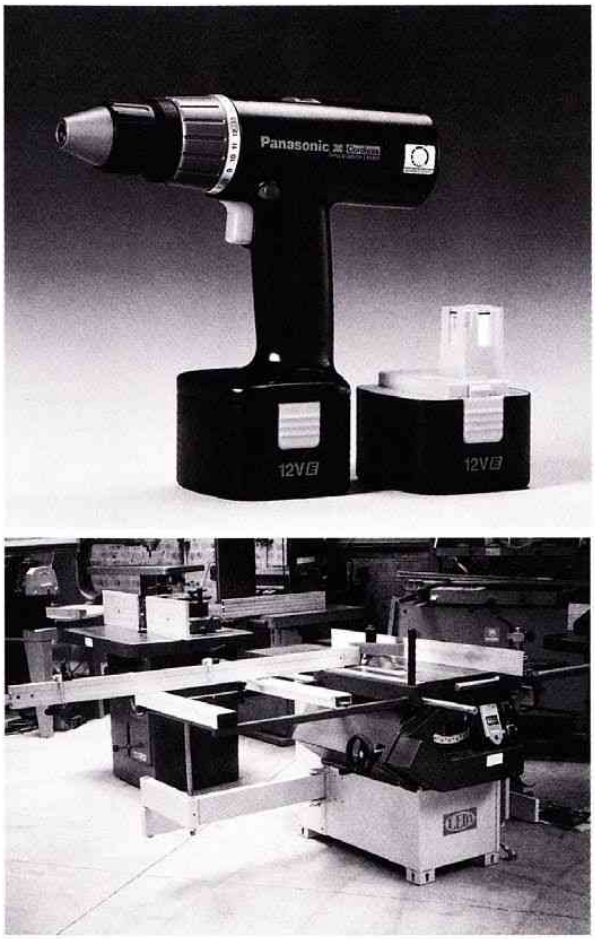
Tool Sharpening For Woodies is the title of the latest release from U'Beaut Enterprises. As the name suggests the video gives helpful tips on sharpening carving and turning tools as well as chisels, planes, scrapers. For information on the video or U'Beaut polishes call (054) 762 356.

Highland Timber

Supreme Wood of Victoria have, amongst their range of timber exotics, stocks of African blackwood, renowned as one of the best timbers for making wind instruments. The company already supply instrument makers throughout Australia including MacFarlane Bagpipes whose principal, Bill Travaille, is reputed to be the only person in Australia making chanters for Scottish bagpipes. Call (03) 9366 8520

A-Class

A-Class are the people to contact for both new and a large range of selected secondhand woodworking machinery. Brands include Altendorf, Casadei, SCM, Luna, Wadkin and Paoloni. One of their popular movers is the Leda C730 combination machine which is a planer/thicknesser, saw with scriber, spindle moulder and mortiser. The machine runs three motors and offers Italian quality at affordable prices. Call A-Class on (045) 773685.



The Leda C730 combination.

Sturt Accredited

The one year full time course in fine woodworking at the Sturt School for Wood in Mittagong has recently been accredited at Certificate IV level by VETAB. Participants are now eligible to apply for Austudy living allowance. The content of the course is essentially the same but is now divided into a series of modules. Call Sturt on (048) 602090.

New Date, New Place

The Melbourne Timber & Working With Wood Show has moved to the Southbank Exhibition Centre and will now run at the earlier date of October 11-13, 1996. Call (03) 9429 6088.

New Timber Outlet

Brisbane has a new source of fine timbers. John Stotschek has diversified from making furniture (past commissions included furniture for the Governor-General's Residence and the Sheraton Presidential Suite) into timber sales and is now offering spalted beech, Lebanese cedar, English sycamore, English limewood, maple, elm and walnut as both boards and blanks. His company, Toona Australis, which is situated in Coopers Plains, is also Australian distributor for the AirPress vacuum pressing system. Call John on 0414 552 002 or (07) 3345 4826.

Moved...

Lazarides Timber Agencies have moved to new and larger premises at Unit 3, 1089 Kingsford Smith Drive, Eagle Farm, Brisbane 4007. Tel (07) 3851 1400, fax (07) 3851 1685. The company have also recently been appointed an authorised distributor for Racal Health & Safety equipment.

After 64 years at 139 Magill Road, Stepney, Otto & Co, one of South Australia's leading suppliers of fine timbers are moving their main office and hardware across to 5 Ann St, Stepney in order to combine timber, joinery, veneer, hardware and craft supplies at the one location.Tel (08) 362 3525.

History of the Environment

Oxford University Press have just published *Australian Environmental History*, a must-have book for those keen to see the 'big picture' of environmental concerns. The book retails for $28.95 and is available from bookstores. Call (03) 9646 4200 for details.

By Philip Ashley

CIRCULAR SAWBLADES

The circular sawblade was developed some 200 years ago and, along with the drill bit, is one of the most commonly used woodworking tools today. Whilst the design of the sawblade has remained basically the same, advances in tool and materials technology has meant that the modern version of the circular sawblade offers a wider range of application and performance options than ever before.

Sawblade Manufacture

A sawblade consists of the body, teeth, gullet and bore. Earlier sawblades (and blades of this design are still used today in many sawmills) were made from plate steel with every alternate tooth bent sideways to produce the clearance. The teeth were sharpened with hand operated gulleting machines, and then filed on top with a hand held file. All in all a sometimes hit and miss affair that wouldn't deliver the quality of cut required nowadays.

Today larger sawblade manufacturers have robotically controlled production lines. The body of the blade is cut with great precision, and automatic machinery is used to precision mount the tips which are usually tungsten carbide. Long life diamond tips are increasingly preferred for CNC machinery.

In spite of the automation used in the manufacture of the modern sawblade, some companies still rely on skilled technicians to ensure quality. For example, all of the larger blades made by the Leitz company are hand hammered to ensure a perfectly flat tool.

Sawblades are required to handle a variety of materials over a wide range of conditions. Larger manufacturers have over 30 blade types listed in their catalogues covering at least 12 diameters which fit over 50 machine types. Smaller scale woodwork businesses can get away with one or two sawblades but large scale operators will have dozens of different blades for many applications.

How The Sawblade Cuts

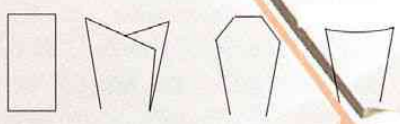
It is important to understand what is really happening when you cut a piece of wood with a sawblade. Knowing this helps you to work the machine better, and get more life from the blade.

Sawblades travel at enormous speeds. A 300mm sawblade can travel at 63 metres per second or 240 km per hour, about the average speed of a formula one car! Imagine hitting something at these speeds. Check your material for nails or stones and always make sure you take off a decent edge trim to reduce the chance of slivers of wood being jammed between the table slot and blade.

Great feed speed is achievable with 4,800 teeth entering the work per second, but if the work is not held firmly, the cut will be very poor. On a basic ripsaw the operator alone controls the wood, a sliding table saw offers better support by virtue of its precision table, and a beam saw will give the best results, as the pack of boards will be held firmly under the pressure beam.

The design of the blade determines the size of the chip, how it is removed, and how it is taken away. Modern sawblades are designed to remove different materials in different ways, so the right blade is essential. While all blades are similar, tips vary.

Tooth Types



The main tooth types are flat, alternate top bevel, triple chip (trapezoid), and hollow. The flat tooth blade (which is the cheapest type) exerts the most pressure on the wood, and is most likely to cause tearing, even though the tooth takes only 1/4800th of a second to do its job. Rip saws for solid wood, scoring and grooving

generally all have this type of tooth.

The alternate top bevel is the most widely used type, as it presents an angle of contact to the wood that 'shears' away the chip with less effort. This type of blade is widely used with solid wood.

The triple chip is designed for MDF and chipboard, as well as solid wood. This design divides the chip into three parts, and gives an excellent finish.

The hollow tip is the best design of all, as it presents an unlimited amount of shear angles as the curved tip enters the wood. However this tooth design is expensive to manufacture and sharpen, and the extreme outside point can be brittle and prone to breakage.

When The Tip Hits The Wood

High speed creates high temperature—up to 800°C at the tip. At the instant the chip is removed there is oxygen, nitrogen, and some moisture (sap or water) present. High pressure is brought to bear on all these elements in the split second of entry.

Although the force of the tool overcomes the strength of the wood, the material still has considerable strength. The chip is compressed by the tip as it is removed, but its natural elasticity will make it spring back to its original size and shape, so a good size gullet is important.

More teeth (and smaller gullets) do not necessarily make a better cut. For

Photo: Iscar blade from Carba-Tec

heavy cuts and thicker wood, fewer teeth often work better, as the gullets are larger and hold more waste. On the downside, larger gullets often make more noise.

Wood species with large well defined cell walls will collapse when being sawn, which accounts for why some timbers cut better than others. On some timbers you can get a sawn edge that can be glued, while other species require planing. The right choice of blade will give the best possible results on difficult timbers.

Maintaining Your Edge

With care your blades will perform to specification for longer periods. Get the right sawblade for the work you are doing. If you intend to cut more than a dozen pieces of a different material, consider changing the blade. Make sure that your machine is in good working order. Remember the tooth passes through the wood many times. The first time it enters the material it cuts. The tooth then continues to enter the sawcut on the up stroke until the blade has passed through the material. A poorly maintained machine may cause sawblade 'runout' where the sides of the teeth score the cut and damage what you have just sawn. When mounting the blade don't damage the teeth or the bore, and make sure that the collars are clean before replacing them. Tighten the lock nut firmly, but not overtight.

There are tremendous stresses at work on the blade which multiply as the tool becomes blunt, and there is no need to hasten this process. Store the sawblade vertically in a wooden box with dividers between each blade—sawblades stacked flat often distort. Don't lay unprotected blades down on steel machine tables.

Keep the blade clean. Removing resin build-up can increase blade life by about 15%. A good detergent followed by a thin film of oil is all that is necessary. Never use a wire brush—and of course no one would ever use a chisel!

Operating Principles

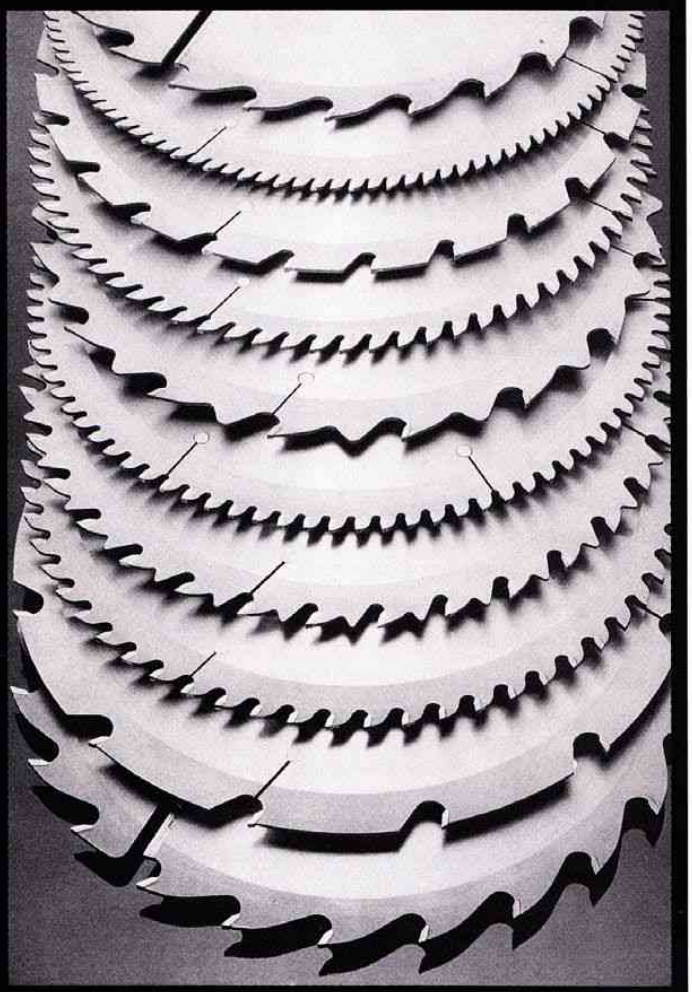
Each tooth on the sawblade is designed to cut an amount of material each time it passes through the wood. The thicker the wood, the more each tooth will remove. After a certain thickness, the gullets will become clogged and the blade will start to overheat, more so when you feed the wood faster.

Another cause of overheating is wet or green timber. Wet timber will exhibit greater amounts of elasticity and natural twisting when sawn. The blade in this case will most likely be rubbing on the sawn edges as it comes back up through the cut.

A common sawing problem is chipping or tearing, usually on the bottom surface of the wood. This can be caused by the wrong entry or exit angles of the blade. On thicker timber, or on stacked panels, this effect is exaggerated and difficult to control, as the entire radius of the blade is probably being used. On single pieces, however, the trick is to raise or lower the blade until the best result is achieved. Start your test with the saw raised until the gullets are just showing above the work. The travel of the blade will be more along the wood, rather than straight down when the blade is at its maximum height.

Top: Laser cutting of saw bodies from heated treated high carbon steel strip (SAE 1080). Laser cutting produces a very dimensionally accurate saw body. Photo courtesy Linbide Tools, New Zealand.

Above: American made 'Maximum' tungsten carbide saw sharpening machine at Chapman Saws Ryde, sawblade manufacturers and sharpeners in NSW. Two purpose built sawblades which have just been sharpened are shown in front. Three generations of Chapmans still work in the business which was established in 1946. The company manufacture circular sawblades for industry, specialising in blades for aluminium, copper and brass, but also for woodworking. The range includes blades from 125 to 1000mm in diameter which may be carbide tipped.



Sawblades from Leitz who have three new sawblade systems which the company claim are a breakthrough in terms of sawblade performance, noise reduction and edge life improvement.
'LowNoise' blades are foil laminated to give a 'by-metal' body which works like a shock absorber to eliminate sawblade vibration.
'OptiCut' sawblades have laser cut 'ornaments' which give noise reduction on a range of materials.
'FormaCut' blades have laser ornaments combined with variable pitch teeth to give extremely high performance on beam saws or computer saws. FormaCut blades are made for a variety of material applications. Variable pitch means that the distance between teeth is not equal as in conventional sawblades. Each tooth produces a different sound which tends to cancel the others out and thus reduce noise.

Sharpening The Blade

Because the method of manufacture of early blades and machinery was far from perfect, the sawblade never sat on the shaft with the neat fit that we expect today, and therefore never ran perfectly true. After the blade became blunt, and to get the blade running as true as possible, the operator would apply a piece of grindstone to the still spinning tips of the blade, knocking off all of the high points. In the bush mills the sawyer would often use a piece of broken beer bottle to do this, as the stone would be considered a bit too aggressive.

When the blade was removed from the machine, a mark would be made on the body of the blade near the bore, and the machine spindle to make it easier to reinstall after sharpening. This was not perfect either, because the person sharpening the blade would have to take off no more than the mark left by the grindstone, and all of this by eye. Sharpening is now done on modern equipment, and quite often by computer controlled sharpening machines.

We can therefore expect a lot more from the modern sawblade provided it is sharpened correctly. First, never run a blade past its efficient cutting state. Once the edge quality starts to deteriorate it's time to change the tool. On a hand fed machine you will be able to feel the additional effort required to feed the material. On a power fed machine the condition of the blade will not be as easy to determine, so a regular inspection of the blade is necessary.

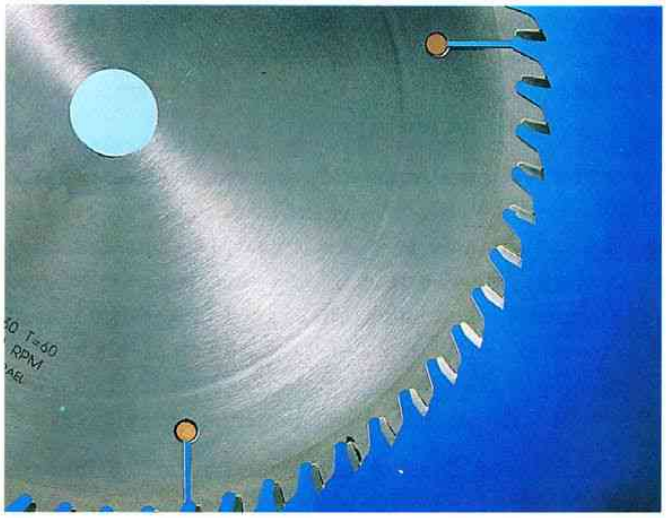
Some operators work their tools harder, thinking that getting more work out of the blade between sharpenings keeps more money in their pocket. This is false economy, because when the tool is blunt, it means that the edge is starting to round over. If the tool were sharpened at this point, the amount of the tip removed during sharpening would be small. If the saw is pushed too hard, the rounding over becomes more acute, and more of the tip has to be removed to get it sharp again. This means that instead of twenty sharpenings, your blade will get only fifteen or so, and you will need a new blade sooner. All that extra wood you processed has cost you more in tool costs and extra power to drive a blunt saw. On top of that the quality of work was probably poorer.

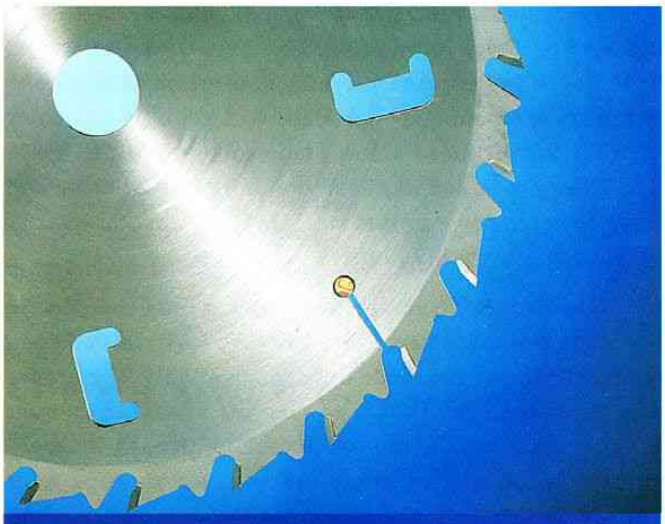
Less knowledgeable sharpening services only sharpen the sawblade tips on the face. This is very wasteful, and can reduce the life of the blade by as much as half. The proper way to sharpen any tool is to take off a smaller amount from the face and the top of the tool. With each sharpening, the blade will be almost as new. As the tips wear down and there is less support for the cutting edge, the time between sharpenings will decrease.

Some manufacturers (and I have done it myself), will get an old saw retipped. However the old blade has no doubt been stressed so much that the expected lifespan as a 'retip' cannot possibly be anywhere near that of a new blade, and may be dangerous as well.

New Developments

Most of the developments of recent years have been in the areas of noise reduction and tool life. Noise reduction has been achieved by modifying teeth shapes, by reducing saw plate vibration via laser cuts or 'ornaments' and by





Top: Fine toothed saw for crosscutting in solid timber and cutting of panel products.

Centre: Quality sawblade showing good sized tungsten tips well seated and supported on saw body.

Above: Rip saw for solid timber featuring anti-kickback design. All of the above are Iscar blades.

building visco-elastic layers into the side of the blade. Reductions in noise of ten decibels, a huge amount, can be achieved.

Longer tool life is difficult to achieve without changing the blade materials altogether. A better blade will certainly last longer, but for high performance you have to look at diamond. De Beers claim that saws fitted with their diamond tips last three months on a beam saw cutting 100mm high stacks of particleboard eight hours a day continuously, as opposed to four hours tool life from a tungsten tipped blade.

Even taking into account the high price tag (of several thousand dollars), the savings in downtime and sharpening costs would enable a company to pay for the new saws in just two months, and the diamond tipped blade would still haven't had its first sharpening!

Selecting Your Next Sawblade

As a woodworker you may saw around twenty different species of solid wood as well as particleboard, MDF with and without melamine, veneer or laminate. One blade only will not be enough. Your supplier should be your best guide however the following criteria will help determine your needs:

1. Ensure that there will be at least one tooth always in the material to be cut. That is, 20mm thick material needs a blade with at least one tooth for each 20mm.
2. For tough hardwoods or similar use more teeth.
3. For soft woods or softer material use less teeth.
4. For thick material use fewer teeth than for thinner materials.

You should also consider the material to be cut, the features of the machine, the grain direction, feed rate and quality of finish. With the right knowledge and information you will be able to make the right choice every time. A good dealer or manufacturer will be able to offer the right advice. Good sawing!

Sawblade Brands and Suppliers:

"Iscar"
Carba-Tec: Qld 1-800-653 777, Vic 1-800-658 111

"Freud"
Woodman Group: Malvern Machinery (03) 9885 6104, Major Woodworking Equipment (02) 9708 3233, Gregory Machinery Pty Ltd (07) 3844 4433, David Trembath Agencies (08) 346 4561, Power Tools & Machinery Supp (09) 272 3844

"Leitz"
Leitz Tooling Systems, Vic (03) 9720 8733, NSW (02) 9757 2664, Qld (07) 3272 2618, SA (08) 346 9188, WA (09) 227 1265

"Linbide"
Craftmaster Products, (02) 9534 4555, (07) 3279 4155, 008 80 2656, David Trembath Agencies (08) 346 4561, Brisbane Saw Services (07) 3266 8611, Bardon Agencies (09) 443 9366, Central Saw Works (054) 43 1877

"Record"
Record Hand and Power Tools, (02) 9748 6800

"Chapman Saws"
H.T. Chapman NSW (02) 9807 6216

Newcastle Bandsaws Pty Ltd (049) 677 116

By Dinah Hall

SAWMILLING IN AUSTRALIA PART I

Sawn timber leaving for Jimboomba Railway Station at Canungra Crossing, south-east Queensland.

Australia's first industry began on the shores of Botany Bay with the setting up of a saw pit by members of the First Fleet. At war with the American colonies and in search of a good source of boat building timbers the English mistakenly thought the tall stands of eucalypts would solve their problems.

The need for timber was so urgent that the sawpit was set up even before the Fleet sailed on to Sydney Harbour in search of a suitable settlement site. Even before the Fleet's arrival a timber-getting and export industry was under way with the Macassans trading with Australians in sheoak and mangroves. Essential timber products had also been produced and the forests fashioned by 40,000 years of indigenous occupation.

With the introduction of steel-based technology in the form of the crosscut saw the Australian sawmilling story began and initially paralleled white settlement in the Eastern States. While the first timbers were necessary for building, each new settlement was based around a specific timber or event. For instance, the penal establishment in Van Dieman's Land used convict labour to mill the coastal stands of huon and celery top pine for boats, while later the gold rushes to Victorian gold fields led to the cutting of timbers for fuel, and the building of mines and settlers' homes.

Small by Nature, Family by Name

Much of the initial felling of trees in Australia was done under the harsh conditions meted out to convict labour. Once free, the ex-convict held the skills and knowledge of the forests and,

Photo: John Oxley Library, Qld

alongside the free settlers who logged and milled timber, the industry was born.

The story of the sawmiller is one of an adaptability, ingenuity and a tenacity known to the pioneering families who have continually logged and milled timbers in Australia over the past 150 years. Regional folklore equates these families' names with the milling industry. To name just a handful, the Duncans in Sydney, the Hynes and Wilson Harts in Queensland, the Geeves, Brittons and Risbys in Tasmania, and the Bunnings in Western Australia have been converting logs into timber products as a way of life for several generations. Many are now writing their family histories as they are being bought out by the big names of the timber industry, such as Boral and CSR.

While West Australia developed larger company based mills relatively early, three main factors have ensured that Australia's sawmills have traditionally been smaller affairs in contrast with their counterparts in North America. Firstly, our small domestic market initially relied on imported North American and Baltic softwoods (and, later New Zealand softwoods). Australian eucalypts were simply not so adaptable to the *gang saws* (a number of circular saws mounted side by side on a common spindle) employed on North American softwoods. The eucalypt hardwoods with their large central pipe require 'sawing around' the major defects by altering the position of the log during sawing to allow the separation of sapwood from heartwood, the knots and the decay. Thirdly, the Australian landscape is as diverse as the number of species that grow here. It was simply more efficient, initially to take the mill to the forests.

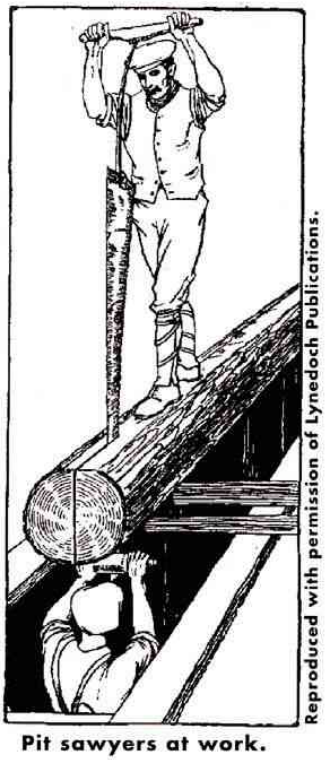
In The Beginning

The pioneering sawmiller went into the massive forests, selected the biggest trees and cut them down by hand. The selectors followed hot on their heels, ringbarking, felling and burning the remaining forests for farming. It was not until the 1880s that forest reserves were set aside and even when licences did place an upper limit on logging, larger companies often held more than one licence. It has been estimated that in the last one hundred years one half of the continent's forests have been cleared for timber, farming and domestic use. Whether these were heroic exploits or not is a matter of opinion formed within the context of raging debate about the sustainability of Forest Industries. There is no doubt, however, that these people provided the pillars on which hangs the framework of white settlement.

When loggers first went into the virgin forests of Australia they were confronted with the daunting task of converting massive trees into workable products with the aid of tools just a step or two ahead of the stone axe. In contrast to the massive mechanical fellers used to fell, de-limb and stack logs today, the earliest form of sawmilling in Australia was the sawpit.

Once felled with an axe, the branches were lopped and the trunk crosscut into lengths; meanwhile a pit was prepared. The strength of beasts was used to manhandle the logs onto a jinker to pull the logs over to the pit. In the penal establishment of Van Dieman's Land 60 to 80 convicts would lift a huge log to shoulder height and carry it to the pit. Here, the log was suspended with one man above and one below performing the dangerous, dirty and skilful task of sawing the log into building timber.

Hand held crosscut saws of various designs and the axe were used as the basis for tree felling up until the 1930s. In some cases, horses or a team of bullocks, and later steam powered winches and traction engines were used to snig the logs directly from their stumps to the mill. Where there was a river, logs were floated downstream to the mill. The North American expression, 'log jam', no doubt originated with this practice. Where there was a steep incline, logs were posted down



Reproduced with permission of Lynedoch Publications.

Pit sawyers at work.

the 'chute', with use made of the log going down the slope to haul one up the other side.

Water Mills

Progress was slow and often dependent on the moods of the bullock and his master. The demands on physical strength were great and injuries were common. The first attempts to mechanise were short lived and little is known about them.

In 1825, nearly forty years after the Englishman, Walter Taylor had operated a water powered circular saw Peter Degraves, with brother-in-law Major Mackintosh, established a water powered mill known as *the Cascades* (the Cascades Brewery was later established by Degraves) outside the fledgling settlement of Hobart. It was to be the first operational sawmill in Australia.

Another water or horse/bullock powered mill was established in 1828, and another in 1835. Water power technology was also being applied in New South Wales where aqueducts were constructed to supply the mills with water. Horses were also used to drive mills but mostly the smaller mills were not able to survive on the milling of timber alone. Many operated as corn or flour mills for much of the working week and as a sawmill for the remaining period.

Steam Power

The development of the steam powered engine was the revolutionary catalyst the industry needed. Logs could now be brought to the one location for milling, allowing the sawmiller to increase recovery from each log and to offer a consistency in supply to the market. Despite an attempt by John Dickson in 1813 to establish a steam powered Sydney sawmill, flour milling proved more profitable. The first steam mill appeared outside Launceston in 1837 on a Dr Gaunt's property with little commercial impact. The following year a Sydney steam mill at the Australian Saw Mills set the scene for the local sawmill industry.

With rapid changes in science and technology and the production of cheaper, high tensile flexible steel, the bandsaw was employed in conjunction with the powered mills to saw cedar planks found along the Hawkesbury. A Mr Dewar also established a steam mill at Darling Harbour producing nine cubic metres a day. It appears steam and water powered technology was being used where most appropriate. For instance, steam mills began to appear in Victoria in the 1830s, however, a water driven mill was also recorded at Mt Macedon in 1844 . Larger, more permanent sawmills were subsequently established using stationary steam plants, while smaller plants used crude portable steam or traction engines.

Sawmilling As An Industry

Little is known about the establishment of mills prior to the 1850s as few official records were kept and many mill operations were short lived

Britton Bros.' steam driven mill at Britton's Swamp in Smithton, Tasmania in the mid-1930s. The board track in the foreground was for early model log trucks to deliver logs to the mill. Tramlines were used for the transport of logs to the mill and also to push timber trolleys to the stacking bays. The mill cut mainly blackwood and Tas. oak sourced from State Forest leases in the Brittons Swamp area. Photo courtesy Britton Bros. Pty Ltd.

Charlie Ball's Timber at Eumundi, Queensland

Photo: John Oxley Library, Qld

and remote. However the Victorian goldrushes of the 1850s changed the face of the colony and its administration. Three quarters of a million people were enticed to the area over its first ten years. By 1880 there were 2.2 million non-Aboriginal people demanding timber for domestic use alongside the structural timbers required in the mines and for fuel.

Sawmilling grew to meet the demands of the new population. By the 1880s the industry was firmly established with around 500 mills operating on the east coast. The effects of the gold rushes were widespread reaching to settlements all over the east coast and in South Australia.

Victoria

Within the first ten years of the Victorian gold rushes 25 mills had been built largely on the goldfields themselves. So rapid was the expansion of the industry that by 1860, 64 mills were recorded and within another ten years, 127 mills were converting logs into the timber products. Melbourne boomed in the 1880s and the number of sawmills swelled to 323 by 1889. The 1890s Depression however deflated the economy at an even greater rate, so that by 1900, only 166 mills were viable.

Tasmania

The Gold Rushes were influential even in the island colony. In 1850 only two mills were operating, yet within five years twenty sawmills were built, primarily to supply the growing settlements of Melbourne and Adelaide. So rapid was expansion in Tasmania that by 1885 a total of 65 mills were operating. However, the mills were still small affairs as 53 of these mills were steam powered operating on an average of 18 kilowatts and employing only 12 people.

South Australia

In 1870, just 34 years after settlement, South Australia had depleted its resource base of timbers. Twenty-six mills however, operated mostly by re-sawing imported timbers. By the 1900s only 24 were operating. With a keen eye on the future of the industry, South Australia planted 240 hectares of sugar gum between 1880 and the turn of the century.

New South Wales

The industry took off later in the first colony with only 12 mills operating in 1855. Yet, in 1860, 48 were recorded and ten years later 107. A sixteen year boom from the 1870s ensured 415 mills were operating in 1886. Again, the 1890s depression affected the industry so that 259 mills were present at the turn of the century.

Queensland

It is interesting to note that Queensland was actually first 'found' by cedar cutters from the Illawara region, south of Sydney, who were blown way off course. The subsequent establishment of a penal colony ensured that the sawmilling industry grew more slowly than in other states. With its small domestic market supplying the bigger southern colonies with specialty timbers, such as cedar and hoop pine for re-sawing, only 44 mills were operating by 1879. The Queensland industry then proceeded to boom while elsewhere it was flagging. In 1890, 114

mills operated, and within ten years 160 mills were producing on an average of 14 kilowatts and employing an average of 14 men.

Western Australia

The milling of the highly durable jarrah and karri timbers flourished as a direct result of the expansion of the Australian railways in the 1870s and the British Railways in Africa in the 1880s. Official records were not kept until 1896 but clearly the industry was strongly established by 1898 with 35 sawmills employing nearly 3000 people and powering on a total of 2800 kilowatts of steam and 2,300 horses and bullocks.

Locating the Mill

Pre-mechanisation meant the location of sawmills was largely dependent on the location of the forests. For instance, in Tasmania, hardwood forests were located beside deep water and sheltered anchorages, perfect for cheap transportation. Initially, logging and milling was confined to these coastal areas.

When the highly prized stands of huon pine were found in the tributaries of the Macquarie Harbour in 1816, recalcitrant convicts were sent there to work in isolation. Later more sophisticated transport systems, such as tramways were developed so that other areas could be opened up to logging and milling. The use of bullocks and horses in the process also dictated the location of sawmills as they required fresh grasses as fodder. Fresh water also remained a necessity for the small settlements that grew around the mill. In some places, most notably in Western Australia, huts were initially set up deep in the forests and gangs of men were recruited, sometimes only receiving food supplies and payment on fulfilment of their settlement's cutting quota.

Difference between town and forest or bush mills quickly emerged as settlements grew up around the logging operations. Forest mills rough cut on site and sold their green or partly aired timbers to the town mills where the timber merchants value-added through seasoning, re-sawing and dressing the timbers. Such town mills were often also specialists in imported timbers and sometimes even undertook cabinet and joinery work as well.

Throughout the nineteenth century most mills were set up and operated within the forests with towns growing up around the sawmills. In Victoria it was not until the catastrophic fires of Black Friday 1939 which claimed 71 lives and destroyed forest settlements and one and a half million hectares of State forests, that the mills were relocated.

Tramways and Railways

Tramway networks were employed extensively throughout Victoria, Tasmania and to a lesser extent in Queensland and New South Wales, while railways were built in Western Australia. These provided an essential transport system for forest mills, carrying supplies to the settlements deep in the forests and access for settlers to the cut-over forests.

Wooden rails on closely packed sleepers carried horse drawn trolleys of saw logs to the railway station or the nearest jetty with its waiting outrigger or insider barges as used on the Murray. Horse drawn buggies or wagons travelled the wooden rails until they were replaced by steam engines. Later wooden rails were replaced with steel and horses superseded by steam driven trains.

In West Australia a railway system had to be constructed to transport jarrah and karri logs from the relatively remote stands to the wharves. The jarrah rails were later covered in metal strips to prevent wear. These had to be greased daily and teams of men were employed for this task—hence the term 'greaser'. The rails were finally replaced with English iron rails in 1882.

A stunning engineering feature of these early transport systems was their adaptability to the often rugged terrain; as timber trestle bridges reduced the need for major earthworks, gullies were traversed by tall bridges and steep grades conquered with winches.

No obstacle was too large for these people. When neither horses or the steam engine *Governor Weld* could control the load down the Darling scarp behind Perth, the wagons were unhitched and lowered by ropes attached to a tree. The horses were then walked down a track or the engine driven and rejoined to continue their coastward journey.

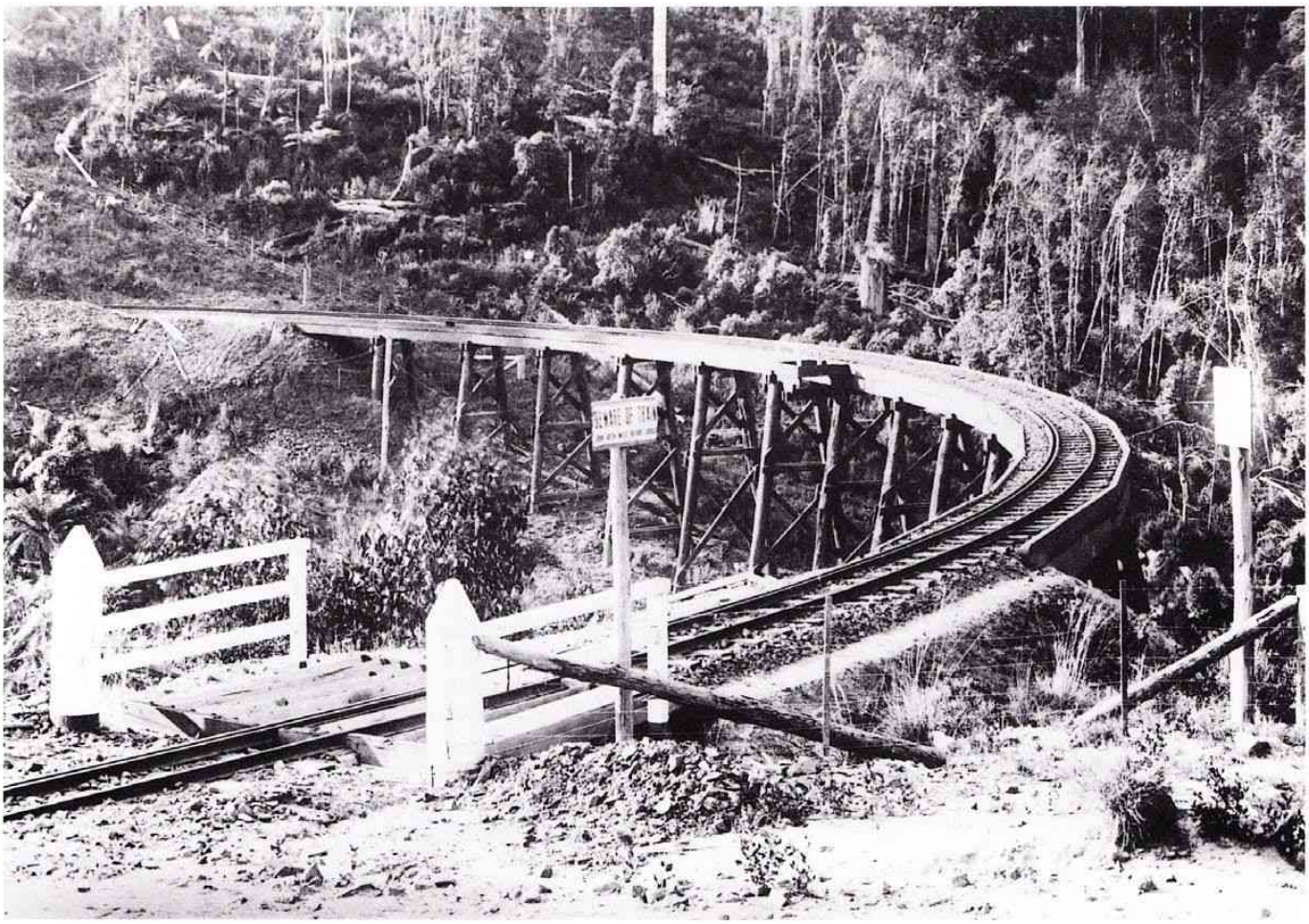
Occasionally tunnels were dug—Henry's No 1 Mill east of Barramunga operated from 1901 until 1927 and was serviced by two of only three tunnels built on the Victorian tramway networks. So successful were these transport systems that in Victoria they were employed for eighty years with some not replaced with roads until the 1940s. The West Australian railway line from Jarrahdale operated until the 1950s. Many tramways form forest walking tracks today.

Licences

From the earliest days security of access to the forests was always an issue for millers who found the best stands, only to lose them to selectors who felt the trees indicated the best soil. So bitter was the tussle, early industrial sabotage between the two primary producers on occasion led to the selectors destroying the patch first. Security of access was also essential in the face of the huge investments in the railways and tramways, let alone the mills.

The tramways expanded as the sawmillers moved relentlessly onwards into the forests responding to the timber boom of the 1850s. Victoria was first to grant licences in 1860 providing sawmillers exclusive rights in the forests for up to seven years. New South Wales followed suit in 1861 but the licence was issued for a year only.

Ten years later, the establishment of forest reserves heralded the beginnings of today's forest policy. Within the first ten years 3.4 million hectares had been reserved and by 1883 another 1.5 million. In 1868 the largely export-orientated Queensland sawmillers



Archival photo of timber trestle bridge over Monbulk Creek on the Puffing Billy Railway line between Belgrave and Selby, Victoria circa 1905-1910. Reproduced with permission of the Puffing Billy Preservation Society and the Emerald Tourist Railway Board.

were provided with exclusive licences. Tasmania's sawmillers gained a licensing system in 1875 and began to lobby government to keep selection two years behind logging. Reservations were established in 1881 but within the first three years only 10,000 hectares had been established.

Western Australia had taken a very different tack when Governor Weld saw an opportunity to attract Eastern colonials and overseas investors by allowing massive concessions in the jarrah and karri forests in the 1860s. In 1869-71 two concessions of 40-100,000 hectares were granted in jarrah forests with a concession of 18,000 hectares in a karri forest. These leases were granted for up to 42 years with virtually no rent paid. Others followed as the highly durable timbers were milled in specially designed mills. With more than 11,000 km of railway being built in Australia from 1870-1890 and 16,000 by the end of the century, railway sleepers were in big demand. Overseas exports meant that by the 1890s, West Australian timbers provided 70-82% of Australia's timber exports as up to 35,000 cubic metres of hardwood timbers were milled and exported by ship. By 1913 nearly 400,000 cubic metres of timber was exported from West Australia.

The huge operations in relatively remote locations meant the timber town infrastructure had to be built alongside the mills as well as the roads to the wharves where larger ships awaited the cargo.

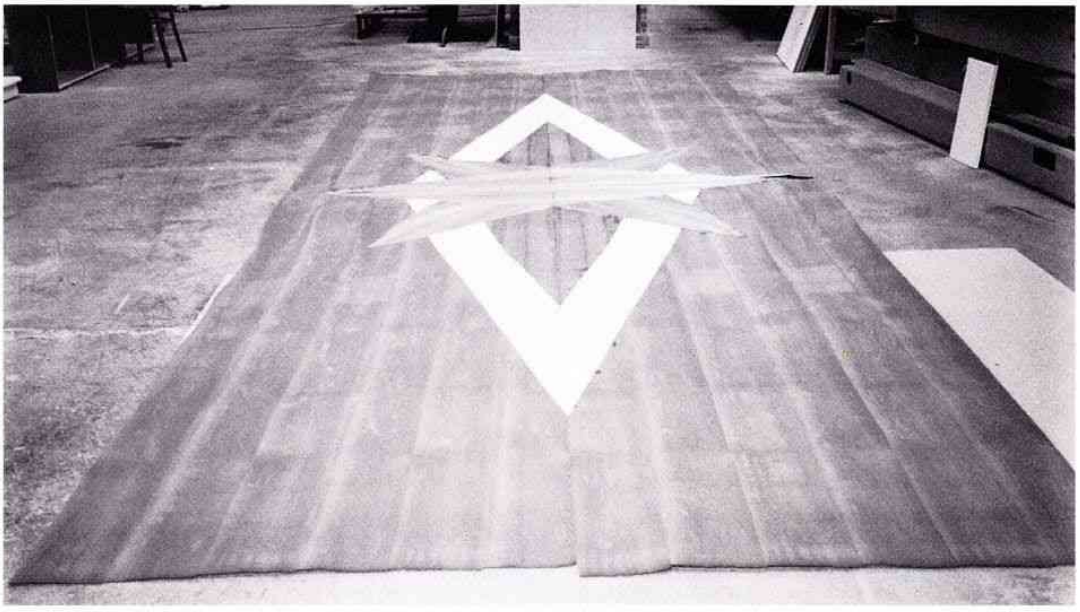
The Depression of the 1890s combined with the consequences of the Boer War closed many mills down. Others survived by specialising in timbers and value-adding through dressing and re-sawing. The first World War again disrupted the industry but afterwards returning soldiers created demand. Imports too were still affecting the industry. The reconstruction of the nation's economy was intrinsically tied to our national identity, Australia began to look towards developing its own industries rather than relying so heavily on imports. For instance, governments put money behind the development of kiln drying techniques and Baltic imports were slashed. Recovery was short lived due to the Depression and the shortages experienced during the Second World War.

It was not until after the Second World War that the industry really changed gears. Our next issue traces these changes including the development of seasoning techniques, forestry practices, plantation timbers and some of the alternative technologies being applied to the milling of timbers.

References:
LT Carron, *A History of Forestry in Australia*
J Dargavel, *Fashioning the Forests*, Oxford Univ Press, 1995
J Dargavel, ed., *Sawing, Selling and Sons: Histories of Australian Timber Firms* Centre of Resource and Environmental Studies, Canberra 1988
HD Edlin, *What wood Is That*, Thames &Hudson, London 1969
FR Moulds, *The Dynamic Forest, A History of Forestry and Forest Industries in Victoria, Lynedoch, Victoria 1991*
KR Bootle, *Wood in Australia: Types, properties and uses, McGraw-Hill, Sydney 1991*
A Graeme Edwards, *Against the Odds: Risbys—Tasmanian Timber Pioneers 1826-1995*, Tasbooks, Launceston 1996

By Michael Gardener

OVERSIZED BUT NOT IMPOSSIBLE



Recently cabinet and furniture makers M & R Universal Joinery of NSW completed a commission for an oval table with a central star motif inlaid in veneer. The astounding size of the table (6500 x 2500 x 32mm, that is 16.25m² or the size of a small bedroom) meant that there had to be some variations on normal methods of construction. Michael Gardener describes how he approached this 'oversized' task.

Because of the size of this piece and the nature of the veneer lay-up we decided to construct the table in four separate pieces. Of course these would have to match perfectly when assembled as the final meeting table. The table was designed by an architect so veneers and measurements were specified as part of the design.

The first step was to make a 1:1 scale drawing which would help calculate the material requirements and the sizes of the veneer bundles to be bought.

After careful consideration, we decided to use 24 leaves of crown cut mahogany veneer with minimum widths of 230mm and a maximum length of 3200mm (this is the maximum length our guillotine can accommodate). We needed the maximum 230mm width to allow for trimming edges perfectly to the final 205mm. A perfect book-match would not be achievable on the individual leaves of the veneer without careful trimming.

For the diamond pattern we used crown cut European ash which has a medium-tight grain and very light yellow-cream colour. The star motif is made from crown cut blackbean veneer, and being a hardwood, was easy to finish and didn't chip when the delicate corners were cut for the design. Blackbean provided a nice brownish-gold contrast.

The motif itself had to be made of a harder wood than the surrounding mahogany veneer because it was essential that the design held its shape at the veneer pressing stage. Remember the area to be pressed on each quarter was a substantial 4.06m².

Veneers for the job were sourced from Albart Trading, one of the oldest veneer suppliers in Sydney. Once we had calculated our veneer quantities, Albart advised us on the best species for the job. Photos 1-8 on page 42 describe the process of laying up the veneers. The picture above shows the quarters with star segments in place.

Each quarter was layed on a pre-glued MDF board (we used a two part heat-hardening glue) of 2300 x 1200 x 32mm and placed in the hot press. Pressing took place in three stages as the boards were larger than the press. The press heats to a temperature of 90-100°C and pressure approximates 100kg/cm2. A very straight, clean surface was the final outcome. The entire top was finished in polyurethane laquer before being attached to the bases.

The maximum number of features applied to a sliding table saw at a low budget cost.

Unbelievable, but true: the more you let the Altendorf ELMO 3 work for you, the more you can earn real money with this machine. Why? The ELMO 3 is 20% more productive and potentially much more profitable than any standard machine. In most cases the extra costs of buying an ELMO 3 is recovered within twelve months. So what are you waiting for? Let's talk about it.

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ALTENDORF Australia

Checking quality and grain marking of each veneer leaf before cutting. One faulty leaf can ruin the whole layup.

The guillotine cuts the whole bundle to 205mm width at once to ensure perfect joints.

Our joining machine uses plastic heated thread to glue together the individual leaves perfectly.

Veneer ends are glued across the grain to prevent splitting in the press. A small, hand-held joining machine operates on the same principle as its larger brother in photo 3.

Veneer lay ups for the four quarters have been cut and joined. A final inspection of the quarter bookmatch joint.

Each segment of the central star motif must be cut with great accuracy.

The table is too big to put on a workbench! After making a suitable platform the veneer is layed up on the floor.

The sections of mahogany veneer where the star sits are cut out to be replaced with the blackbean and ash segments.

competition

We have an Arbortech Industrial Freehand Shaper to give away. This tool allows you fast and accurate sculpting and cutting, valued at $120. To have a chance to win this great prize all you have to do is tell us in around fifty words, your best workshop tip. The overall winner will receive the prize and the best entries will be published in an upcoming issue. Entries close 25th Oct.

Fax or Postal entries only to: **Australian Wood Review Competition**
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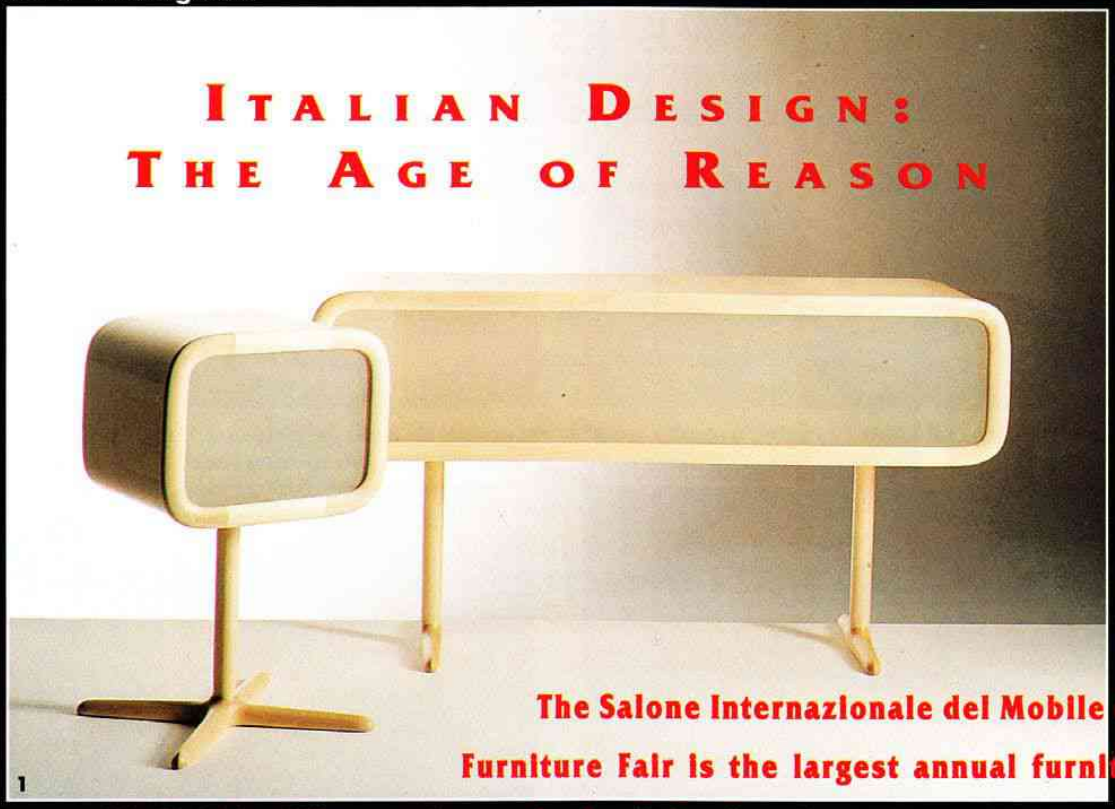
Congratulations to last issue's winners, R. Stanford, NSW and R. Bowden, Qld.

By Michael Trudgeon

Italian Design: The Age of Reason



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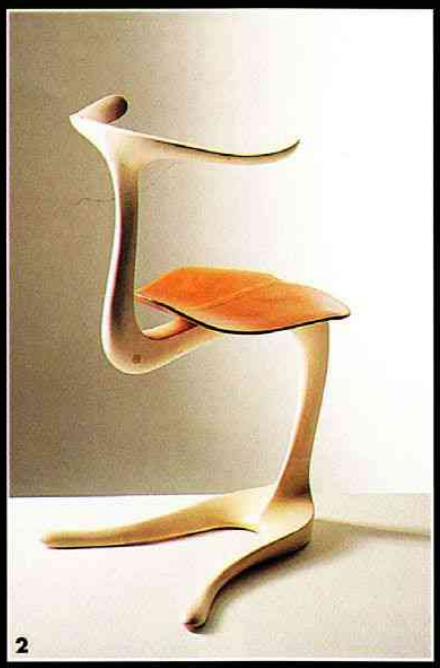
The Salone Internazionale del Mobile or Milan Furniture Fair is the largest annual furniture fair in the world. Held in Milan each year in April for five days, it attracts nearly 2,000 exhibitors, the bulk of which are Italian. It is a testament to the power of the Italian furniture industry as being the most influential in the world in setting trends.

The total area of the fair is 210,000m², the equivalent to some 20 multi-storey Myers or David Jones department stores full of furniture. Around 150,000 furniture industry professionals attend from around the world.

This year, alongside the commercial core of the fair, six other exhibitions featured themes or showcased the work of significant designers. In and around Milan for the duration of the fair, many of the high profile local furniture manufacturers, such as Cassina, hold daily openings and events in their showrooms. Each night launch parties are held. Luckily, for the inexperienced overseas visitor, all of this is published as a small pocket sized booklet in the Italian design magazine Interni, with names, descriptions, addresses and times.

Other spaces, including art galleries, also hold relevant concurrent exhibitions. Among these was an exquisite exhibition of the colour work, drawings and paintings of the very influential Italian architect Bruno Munari. This



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was worth visiting for the renaissance architecture of the venue (the JVBD gallery) alone. These additional exhibitions remind the visitor of the wider context in which all contemporary design efforts must sit.

The Milan Furniture Fair feels like a vast medieval market. Practitioners from all areas of the local design community come into town. Everybody involved from pure design to production engineering and marketing attends, in order keep abreast of new ideas and directions.

International designers like Philipe Starck can be seen wandering from stand to stand with everybody else. No matter how glamorous the veneer may appear at times, most of it is about business and connections. At the end of the day the outcome of business done at the fair can decide the fortunes of a company for the following year.

Like contemporary car shows a great number of the new products displayed are only prototypes. The reaction of

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1. Cecotti distinguish themselves as a company devoted to the craft of construction in wood. Christopher Pillet's simple plywood maple/palisander veneer containers *Wood Box* range with sandblasted glass doors.

2. Cecotti: The English designer Ross Lovegrove's beautiful but impractical *Bare* chaise.

3. Desalto is an example of a large and established Italian furniture company developing a smaller offshoot company to handle a different market sector. Desalto is far more radical than the parent company and claim to be inspired by 'an updated idea of living!' The *Lifter* table by Andreas Weber is height adjustable for different uses. A funky-meets-rational design mix.

4. Atlantis: *Zona* in natural or bleached beech, designed by Gianfranco Poli. According to Atlantis: '*Zona* wants to be a design object at first sight, but also a comfortable chair in everyday use'.

5. ClassiCon: *Architect's Cabinet* of maple veneer with revolving and extending drawers and doors. Designed by Eileen Gray c.1925. Limited edition of 25.

6. Driade, a leading Italian furniture manfuacturer exhibited a very rational range this year as indicated by the *Paladino* bed designed by Josep Llusca in beechwood.

7. From Edra *L'Homme et la Femme* medium and large sofas designed by Francesco Binfare.

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1. Fiam is the world leader in developing glass technology for furniture. Each year their designs continue to break new ground in the use of glass. Ron Arad has developed the *Onda Kart*, a new storage range of ripple glass panels, to make a modular system of units to take every conceivable domestic commodity.

2. Ciatti A'Tavola's *DOC* table illustrates this year's extendable rationalism featuring natural materials. Designed by Pietro Arosio and made from steel-grey-lacquered metal with tops in white laminate, maple and teak.

of these pieces. Many never make it into production. After each fair a company may need to concentrate for two to three months on sorting through the information and orders they have received from their participation.

This year is the 35th anniversary of the fair. It was started in 1961 when the world's biggest furniture fair was in Cologne, Germany. The most innovative and influential furniture producing region at that time was Scandinavia. A group of Italian furniture manufacturers and designers had exhibited in the 1960 Cologne furniture fair, or Cologne Mobelmesse, for the first time and drawn a good response.

Italian furniture exports were wellnigh non-existent at the time. Tito Armellini, an Italian journalist and publisher observed that 'If the Scandinavians have succeeded in imposing their style on the world, why shouldn't we be successful in imposing ours?' Convinced they could do more, the group (including Franco Cassina and Cesare Castelli) approached the Milan Fair Secretary General Michele Guido Franci to start up a furniture exhibition each year in Milan just after the Cologne fair to showcase and promote Italian design. With enormous conviction, energy and the participation of Italian industry, especially the chemical industry, the Italians had totally eclipsed their rivals by the early 70s and have stayed at the top as the international trend setters and innovators ever since.

The design world wrongly assumes that the dominance of Italian design is a natural legacy of the Renaissance or the great culture of ancient Rome. In fact, after the Second World War Italy was virtually a third world country, its industrial sector in ruins, and the idea of a contemporary Italian design movement was laughable. It was only by the will of the design and manufacturing communities that the idea of contemporary Italian design was created.

Today 53% of Italian furniture is sold abroad, creating a massive 32.7% share of the total European Union's furniture exports. The Milan Furniture Fair has become the central arena for innovation and change in domestic furniture, acting as a litmus test for the industry and giving it new life.

The fair is roughly divided into three parts. Firstly there is classical furniture, consisting mainly of reproduction antique furniture. Cashing in on the electronic communications revolution this year was a British company which sells antiques through the Internet. Without an official outlet, the company possess only a very large warehouse somewhere in Milan. It seems ironic that the Internet is ideal for trading in antique goods.

This company has also started to reproduce antique pieces at a fraction of the cost of the real pieces. They are doing this because the European recession has dramatically reduced the size of the antique furniture market. While there is a big market for antique pieces, expensive foibles are the first to be dropped from the shopping list when the money gets tight. The cost of skilled Italian craftspeople has meant that most of this reproduction work is done offshore in the Philippines or Poland. Such reproduction pieces sell for a tenth to a fifth of the originals. This all sounded pretty shonky to me.

Next there is modern furniture. At best this consisted of vaguely modified copies of last year's best sellers. At worst they were grotesquely embellished copies of famous 50s furniture pieces.

Lastly there was the 'Designer' section. Now this might sound like an excuse for some excessive gestures and improbable materials but with the new dour sobriety of Italian design, it means rational, elegant and genuinely useful furniture with a bit of imagination and soul.

In conversation with Italians involved in the design and manufacturing industries there is an air of concern about current economic trends. People are bracing themselves for a further re-

cession. This is strongly impacting on Italian design where a new conservatism is creeping in at the high end. The result is an emphasis on rationalism and a re-examination of functional requirements. This is combined with extensive use of wood and other natural materials to infuse a sense of warmth or comfort into the pieces. As a response to the 90s social climate it is tending to make 80s furniture look naive. Flexible, adaptable and simple furniture is now the order of the day.

Fold-away and extension were big on everybody's agendas. Most kitchen tables have well concealed but efficient extension and fold-out systems, so that one table can be both kitchen table and dining table for ten. Many shelving units featured fold-away racks and table editions. Some were wall mounted and featured systems that allowed very easy reconfiguring to add stereo shelves, showcases and more.

The designer furniture concentrated on beautiful proportions, meticulous finish and carefully chosen surfaces. In the best work all extraneous detail has been removed. This has made much greater demands on the craftsmanship of manufacture. Ironically however, if you have a brilliant eye for proportion and finish you can make it all yourself, apart from the injection moulded chairs and pressed aluminium shelves.

The work of significant Italian furniture designers Achille Castiglioni and Joe Colombo was featured. Castiglioni's drawings of furniture designs from 1950 to the present day were displayed along with recreations of three of his installations which explored new directions in domestic space. The first of these was designed in 1957 and gives quite an insight into how people imagined the world would change.

Joe Columbo was one of the most famous and influential designers of the sixties. Columbo's work included a considerable amount of designs intended to respond to future changes in domestic life. He was a key participant in the ground breaking design exhibition *Italian Design, The New Domestic Landscape*, held at the Museum of Modern Art in New York in 1972. This exhibition explored radical new ideas for living spaces of the future. A number of the pieces from that exhibition were shown. Joe Columbo's work shows a vigorous imagination, along with an ability to envision future taste trends and production requirements. For this show a number of his un-built proposals had been prototyped, among them a compact mobile kitchen for the small city apartment or warehouse living space, designed in 1963. Thirty three years later it not only looks utterly contemporary but has completely prefigured a trend in designing for small flexible domestic spaces that is only now emerging. Skilfully researched and beautifully presented, one might have expected to see this show at a major design museum or art gallery. It indicates the level of care and commitment the Italian furniture industry has for its position and future.

The Milan fair featured two exhibitions devoted to researching new trends for the domestic market place. *New Trends* was based on the first Europe-wide consumption survey which identified a number of major trends in consumer thinking and desires. These included a desire for greater creative and spiritual expression, an emerging interest in ethics, continued disorientation due to the rate of change in contemporary life and its complexity, and the need to explore the world seeking more knowledge. These social trends were extrapolated into eight areas of consumer domestic spending. The outcome was to emphasise the need for shared and flexible products and furniture—furniture that stimulates and excites, furniture for the new electronically wired spaces, ecologically sound furniture, furniture that expresses cocooning and domestic security and furniture and appliances that educate or inform the user.

For insight into world design trends it seems Milan is still the place to go.

Michael Trudgeon is an architect and designer.


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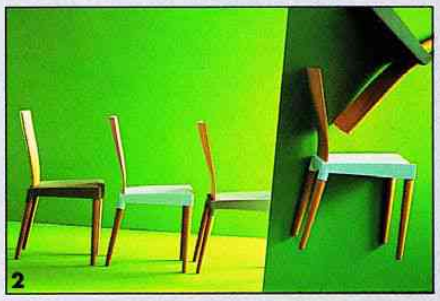
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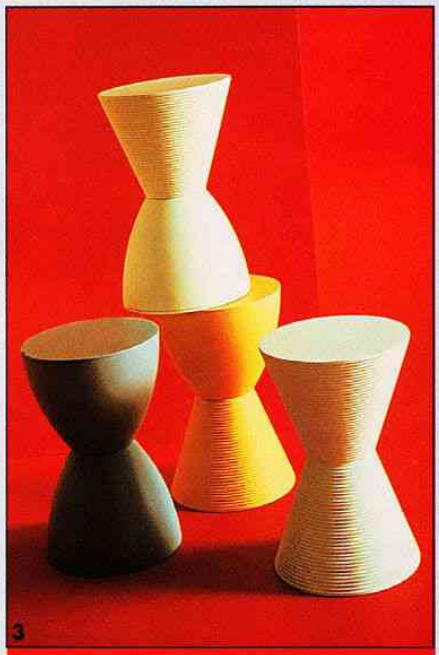
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1. This beautiful oval table by Enrico Frazolini for Accademia captures the essence of the current Italian formula: finely detailed and made with a mixture of formal and warm materials, functional with some character—designed to sell.

2. Kartell, the masters of plastic are back with a sixties theme. The Philipe Starck chair *Miss Trip* combines plastic with a curved back and turned legs, both in beech. A locking system attaches the elements.

3. The *Prince Aha* stool is an open ended design exercise. The stools shown are made of two identical modules locked together. The intention is to bring out variations on these modules in future years so you can mix and match these with the current modules. Already of course, the colours from each end (on top and bottom) can be mixed.

By Bob Howard

CUTTING FAST AND FINE: JAPANESE SAWS

To someone raised on the familiar Western saws, the odd looking Japanese saws, with their peculiar reverse cutting direction, seem too weird to be serious. Yet most woodworkers have, by now, heard someone rave about how good they are.

If the performance of Japanese saws was not significantly better than Western saws, they would not have penetrated the market to the extent they have. The innate conservatism of the woodworking fraternity would have seen to that. That Japanese saws have been accepted by many is eloquent testimony to their dramatic performance. The other likely impediment to their success—the difficulty of sharpening them—has been eliminated by the modern solution of disposable blades. This point is worth noting because Japanese planes, for example, have not enjoyed the same success. I believe this is largely because many woodworkers find them intimidating. You cannot simply buy them and use them. You need to know how to set the blade, and how to tune and maintain them. The saws present no such difficulties. In comparison to a Japanese saw, a Western saw feels like a clumsy, crude, blunt instrument.

As with all Japanese tools there is a wide range of quality available, particularly at the top end. The problem with the high quality, hand made saws is that they need to be resharpened, so you either do it yourself or send them back to Japan. The blades are too expensive to throw away. Fortunately, the disposable blade-type, commercially made saws are good enough for most of us.

TECHNIQUE

Before looking at the performance of these saws, it is worth saying a few words about how to use them. The distinctive feature of Japanese saws is that they cut on the back, or pull stroke. Because this places the blade in tension during the cutting stroke, the blade can be much thinner than a Western blade which needs to be thick enough to resist buckling when cutting on a push stroke. Japanese saws have much more sophisticated tooth shapes as well, and are often much more delicate. As a result, if used inappropriately, they can be damaged fairly easily. In the book on Japanese tools and architecture, *The Way of the Carpenter*, William Coaldrake makes the point about Japanese chisels that *the finer the steel, the greater the precision demanded of the user*. This a good rule for all tools because we probably tend to assume the reverse. (An appropriate analogy might be that only a highly skilled rider can master a world class, 500cc racing motorcycle).

When you first use a Japanese saw, you need to adjust your rhythm. As pressure is applied to the saw only on the cutting stroke, you need to reverse your normal rhythm to get the pressure on the back stroke. This requires a bit of concentration when you begin. It's like the pedal cars of our childhood where the pedal work was the same for forward or reverse, but you needed to make sure the first push sent you in the right direction.

The most common mistake I have seen people make with these saws is being heavy handed. One clue is your grip. If you hold the saw with your knuckles showing white and your forearm bulging it's probably safe to say you are overdoing it. You cannot 'muscle' the saw through the wood. The age old maxim is to let the saw do the work. Apply gentle pressure on the cutting stroke; relax and rest on the return stroke. The teeth do not cut efficiently going backwards, so applying pressure then only wastes energy and blunts the teeth more quickly.

When you have the right rhythm the cutting stroke should sound considerably louder than the return stroke.

Applying too much pressure to the saw can break the teeth. This is particularly so with the fine dozuki style back saws—the equivalent of our tenon or dovetail saws. With teeth as fine as one tooth per millimetre (around 25 tpi), these require gentle handling, especially in hard woods.

Apart from simple considerations of geometry there doesn't seem to be any best way to use these saws. Toshio Odate, in his book *Japanese Woodworking Tools; Their Tradition, Spirit and Use*, makes the point that every Japanese craftsperson has a different grip. It is a matter of trial and error to find one that works for you.

The demands of geometry are simply that the blade will cut in the direction you move it, so if you want it to cut straight and square, hold and move the blade straight and square. Give yourself plenty of room and don't cramp your saw arm, as this will cause the handle of the saw to 'wag' and result in a rounded cut. The whole arm, from shoulder joint to fingers, should lie and move in a single vertical plane. If you find (as many do) that your cuts are regularly off square in one direction only, then what feels 'right' or 'square' for you obviously isn't correct. Deliberately hold the saw in a position that feels 'wrong' or 'off square' until you find a position that results in a correct, square cut.

Remember that once a cut is begun off square, you will not be able to bring it back. As always, practice makes perfect.

Japanese cabinetmakers saws L-R: Deep cutting Gyokucho dozuki (26tpi), Z-saw dozuki (26tpi), Gyokucho Sunchild dozuki (20tpi).

Carpenters saws. Left Z-saw kataba style crosscut saw. Right: Gyokucho ryoba style crosscut and rip saws.

Brands

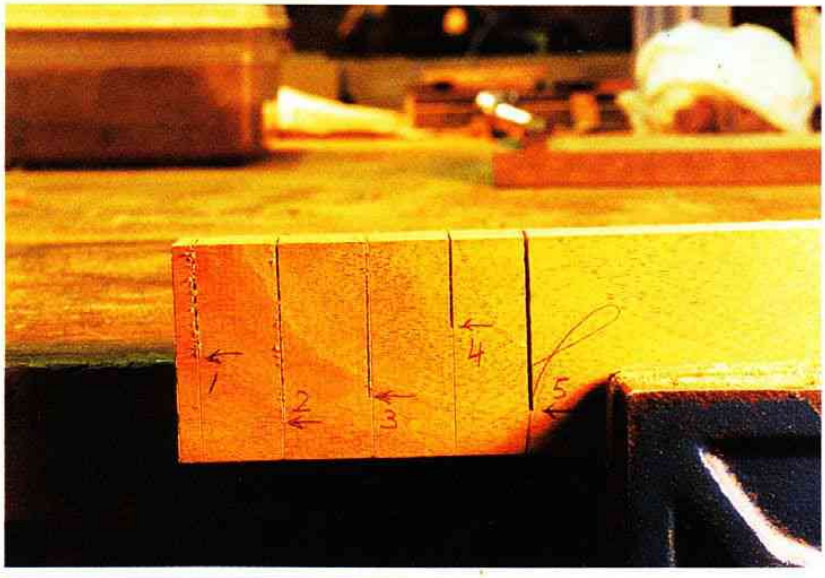
Despite the growing popularity of Japanese saws, there is a limited range of types or brands to choose from. For the purpose of comparison, I have confined myself to the most common two styles and ignored the specialist saws, such as the flush cutting and keyhole saws. The market here is dominated by the **Gyokucho** brand with the **Z–saw** brand arriving to provide some recent competition. **Sunchild** is another brand made by the Gyokucho company.

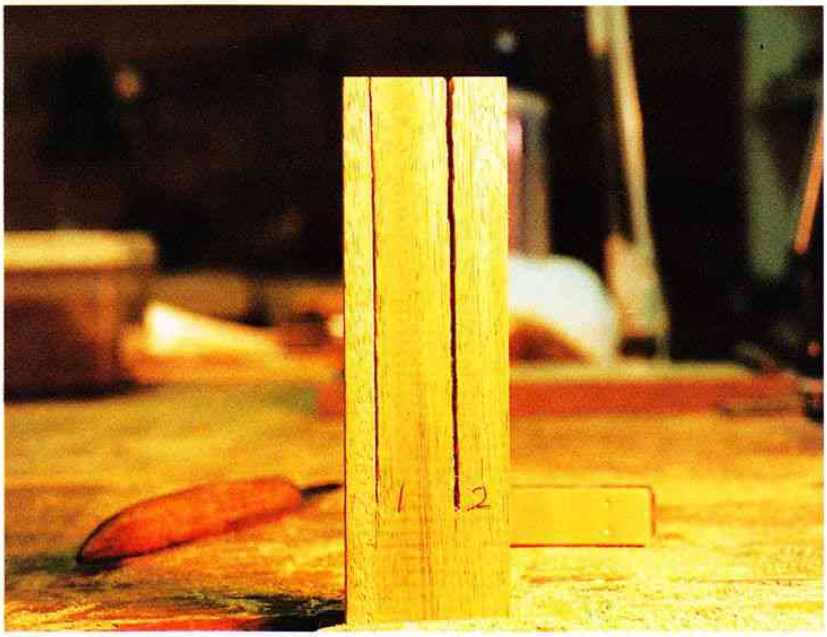
Types

The two styles of saws are the *dozuki*, which has the stiffened back similar to our tenon or dovetail saws, and the carpentry saws. Of the latter there are the *ryoba* (historically the more recent, an odd shaped saw with crosscut teeth on one side of the blade and rip teeth on the other) and the *kataba* style (with teeth on one edge only, which means you need separate rip and crosscut blades). See photos p.49.

Japanese vs Western Saws

The most obvious difference between Western and Japanese saws is in the size of the kerf, as shown adjacent. Only the best Western dovetail saws come even close to matching the superb fine cut of the Japanese saws. The next major difference is speed and smoothness of cut. The top photo shows a comparison of various joinery saws after the same number of cutting strokes. Even though such a test is extremely subjective I don't think there is any doubt about the accuracy of the general result. At right is a similar comparison between a Japanese and a Western rip saw.

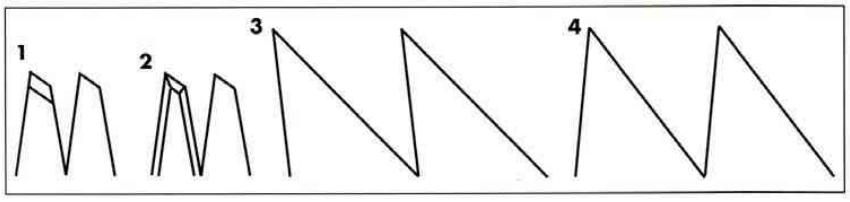




Top: Crosscut comparisons, normal hand pressure: 1 Sunchild, 2 Z-saw dozuki, 3 Deepcut Gyokucho dozuki, 4 Spear and Jackson dovetail saw (Western), 5 Pax 12" tenon saw (Western)
Above: Rip comparisons: 1 Gyokucho Ryoba, 2 Pax 26" 5 TPI rip saw

In both cases it's worth remembering that account must be taken of different blade lengths. All the Japanese saws used, whether joinery or carpentry saws, have blades 240mm long. The Spear & Jackson dovetail saw blade is 200mm, the Pax tenon saw 300mm, and the Pax rip saw 660mm. This fact emphasizes the effectiveness of the Japanese blades. The 240mm Japanese rip saw cuts as quickly as the much longer Pax, *and* was much smoother and more pleasant to use. I have also found that, on long cuts, the pulling action is much less tiring than pushing. In the photos you can also see the exit cuts for the Japanese saws, and the entry cuts for the Western saws. The difference between the two is extremely dramatic on the other side, especially when you see the exit cut of the big Western rip saw.

Fig 1 Japanese sawteeth
1 Sunchild tooth 2 Normal crosscut tooth 3 Ripping tooth-softwoods 4 Ripping tooth-hardwoods



Japanese Brands Compared

Dozuki Saws

There is a difference between the Sunchild and the others. For some reason the teeth of the Sunchild are sharpened differently (see fig.1). Tooth profile lies between the normal Japanese rip tooth and crosscut tooth, and it does give a good, all round performance. While the weight of the two saws is roughly equal,

the Sunchild ripped approximately twice the distance of the Z-saw for the same number of strokes.

The Sunchild has 20tpi, compared to 26tpi for the Z-saw. The other deep blade Gyokucho saw performed about as well as the Z-saw in spite of being heavier because of its larger blade. However, the deep blade Gyokucho seemed to me to be the smoothest of the three. The Sunchild felt the most aggressive, and because it has bigger teeth it is the more robust saw.

To summarise, the Sunchild has the better ripping capability, while the Z-saw is the best crosscut performer. The deep bladed Gyokucho was the smoothest in the hand. It really is a question of what is most important to you.

Carpenter's Saws

The performance of the Gyokucho ryoba crosscut and the Z-saw kataba crosscut were very similar. The Z-saw has 19 tpi and the Gyokucho 20 tpi. The choice between these will depend on whether you prefer the convenience (or shape) of the two edged ryoba, or the more familiar single-edged kataba style. With the kataba you need to buy either two separate saws, or at least two separate blades (and swap the handle from one to the other as required).

The downside of the Ryoba is that the second set of teeth can score the side of the cut if they go below the wood surface. They can also inflict a very nasty wound if you forget about them at a critical moment.

Conclusion

Which saw is best for you will depend on many things, such as how gentle your hands are, the type of work you do, and the wood you use. Heavy hands and hard woods are both a threat to the fine 26 tpi saws, though they *will* handle the hard woods if used with care. I have used Gyokucho saws for years and I like them very much, however I was very impressed by the all round performance of the Z-saw.

As I said in the beginning, there is no doubt that Japanese saws are magnificent saws to use. The smooth cut and extremely fine kerf make them a cabinetmaker's dream, and in my experience, their most spectacular achievement is their effectiveness as rip saws for carpentry saws. After struggling for years with a Western rip saw of 5 tpi, the Japanese rip saw came as an amazing revelation. As far as this test is concerned, the greatest contrasts are between the Western saws and the Japanese, rather than among the Japanese saws themselves.

Suppliers:
Z-Saws:
Carba-Tec Toll Free 1800 658111
Gyokucho, Sunchild:
Garrett Wade Toll free 1800 33 77 36
The Wood Works Book and Tool Co (02) 9484 1183

By Linda Nathan

GRIFFITH FURNITURE: ALL FOR THE ENVIRONMENT

If you drive along the Pacific Highway in Northern New South Wales you will see a dead tree on the roadside not far from Murwillumbah which carries a signpost to 'TreeTops'. Follow the sign and you'll wind along a pleasant country road some three kilometres.

Coming up onto the rise you'll see it emerge; a huge, multi-storied timber construction with all-round verandahs in the Australian manner, flanked by other buildings, tall trees and gardens. You might be surprised to find an enterprise which saws timber, manufactures furniture, sells fine art and craftworks and offers fine food and wines. Around twenty people currently operate the various businesses which are collectively a good income generator and widely acclaimed tourist attraction.

What goes by the name of 'TreeTops Environment Centre' is a creative business concept which was founded by the Griffith brothers, Jeremy and Gervase, who came to the Tweed Valley some twenty four years ago. The idea of finding an alternative lifestyle probably wasn't too far in the back of their minds.

Gervase Griffith was a journalist but admits 'court reporting and news reporting just didn't click with me. When I came on holidays to the northern coast I saw a chance to work for myself.' Jeremy was a zoologist and had, prior to then, been involved in expeditions in Tasmania, looking for Tasmanian tigers.

The first phase in the evolutionary cycle of 'TreeTops' was 'Griffith Tablecraft'. Jeremy recognised a great resource in 'waste' or undervalued timber such as firewood, fence posts and abandoned felled logs. Today salvaged timber is the cornerstone of Griffith's development—sustainability and environmental responsibility is the company credo.

Initially the idea was to mill slabs and sell them as table tops. The bark to bark slabs of rosewood, cedar and red carabeen revealed wild figure and colour and sold easily. Requests came for table bases, then a chair and before long there was a need to employ people to produce a range of furniture which found a ready audience. Now called Griffith Furniture, the company has an annual turnover of around two million dollars a year. Seven years ago total income came from furniture manufacturing. Nowadays, that percentage has been halved as the gallery

The cabinet workshop (above) and the sawmill (below) at TreeTops.

and restaurant sides of TreeTops have been developed.

Some years ago, Jeremy left the business to write books about the 'human condition' leaving his brother to continue extending the whole Griffith concept. Fifteen lodges are currently being built on site to accommodate local and overseas tourists. Talk of setting up two more TreeTops Environment Centres (one in the Hunter Valley, NSW and one in Maleny, Qld) is starting to get to the serious planning stage.

All this from furniture which, to look at, has remained pretty much the same over the years. The designs are almost totally led by the visual appearance of the material and considerations of construction and transportation. 'Really it is nature that is the creative force and man's job is to present what nature provides', says Gervase. 'Ideally we use no screws, glue or nails. We will use these for special jobs however—its not always economically viable not to. This is not clever, it's sensible, it's obvious and it allows the wood to move. The furniture is demountable which helps to get it to market.'

Larger furniture manufacturers who specialise in solid timber are not in great supply, he explains. Catt, Jackson, Chiswell, Parker all started out as family businesses who built their reputations on solid timber. As volumes of production increased, panel products were adopted to both reduce materials costs and streamline the manufacturing process.

Gervase claims his annual turnover could be over five million. What's held production back is his own reluctance, 'I didn't want the retailing and marketing hassle. Really the potential is $50 million a year. We've got companies like Captain Snooze and Forty Winks wanting to sell our product'. It's not just the look they're after—that wouldn't be too hard to copy after all. It's the total lifestyle and ideology which is portrayed in Griffith Furniture. Trees and timber are a sensitive issue, but salvaged and recycled materials seem to offer a guilt-free way which implies a person can buy timber products and not feel like an environmental criminal. As the company brochure preaches: 'We salvage, we don't pillage'.

The fact that the furniture still has a very 70s feel about it (which derives from the post-hippy swing to 'natural' objects, craft and handmade items) also works well in the 90s where some people feel more comfortable with timber products that still look like trees. The slab tops, sides, pedestals and boards proudly display waney edges, splits, cracks and figure.

Both in the 70s and 90s the inclusion of features once regarded as defects is an environmental statement, although now the politics are changing insomuch as the timber industry itself is now promoting this as a marketing imperative. On the one hand it is a way for the timber industry to maximise its resource; on the other it is being promoted to the manufacturing industry as a way of tapping into a new 'environmentally aware' market, while being economically and politically correct at the same time. Griffith Furniture must have been one of the first furniture manufacturers to adopt 'natural feature' timbers for production of an ongoing range.

Logs are brought in from Griffith's Australia-wide network of suppliers, many of whom started out as firewood suppliers and now tread the 'high moral ground' of salvaged timber-getting, whilst also finding a better return for their labour. Timber comes from along the Murray River, from Northern Queensland, Victoria and South Australia. 'Eighty years ago clear-felling was the norm, farmers burnt, buried and

pushed logs away. Now they're starting to realise the value of them' says Gervase. In recent times the cabinet shop has even used timber from New Guinea, harvested by walk-in portable sawmill operators.

The definition of 'salvaged' timbers has also been expanded to include what might be more aptly called 'rescued' timber such as rainforest logs that have been lying forgotten in sawmills. 'Cutting them down shouldn't have happened, but it has and we can turn it into something that will live forever'. Sources of timber are public and private land.

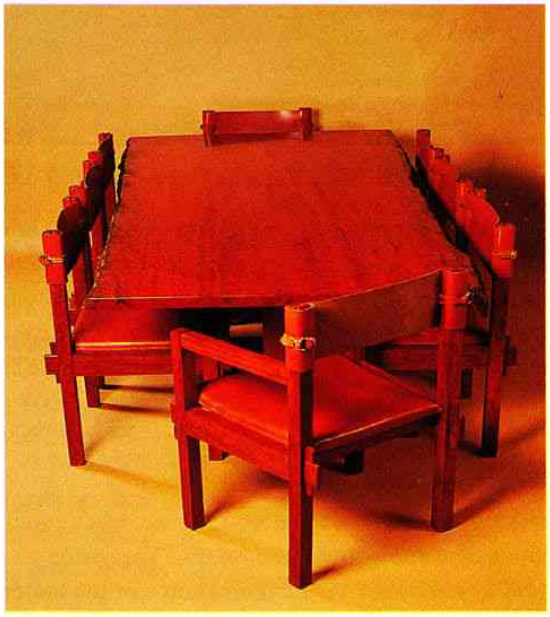
TreeTops has its own reafforestation program which has seen the planting and rehabilitation of grazing land which was purchased in stages from its former owner, who himself got caught up in the enthusiasm of the Griffith brothers and vendor financed the acquisition of the property.

Gervase Griffith selects timber for customer orders. Below: Two examples of Griffith furniture which illustrate the dry, pegged mortise and tenon construction and use of slab sections.

The Griffith Fine Art Gallery displays the work of regional artists and craftspeople in close proximity to the restaurant. From the main building a long, covered timber walkway passes about three metres overhead through the high-roofed workshop where the process of furniture making can be viewed. Huge slabs of rosewood, black bean, red cedar, river red gum and other species are stacked to one side. Through the open sides of the factory the sawmill is just visible. Beyond again is a solar kiln, which was one of the first set up in NSW based on a model developed by the Queensland Forestry Department. Since then many other solar kilns have been established in the NSW and have evolved in the process.

Gervase Griffith is, not surprisingly, a busy man whose obvious passion is the company's interdependent and mushrooming activities. He doesn't really know how many hours a week he works. Counting up hours, holidays and pay cheques is part of a work ethic that he got rid of when he came to the area in the 70s. Managing the centre is not a job; work, life, doing things by day and thinking about them in the middle of the night are all part of the same process.

Success is often something which other people see—the central characters in such a story may be too busy to see it themselves. TreeTops *is* a success—so what is the secret? 'It's probably the people we are, the service we provide, our presentation, a whole lot of things,' says Gervase. 'We're not content with standing still, we're always moving forward. You've got to be soft and



compassionate with the clients and the staff (sure we've been let down too) but at the same time you've got to be tough, even if that means sometimes having to go to court.'

With a product range which has continued to sell for over two decades the threat of competition or copying might exist. Gervase isn't too worried. 'There are all sorts of imitators, but they're all motivated by money. Few are environmentally precious. We see them every day—they come in here measuring and looking at how things are made. We get reports from all around Australia, from visitors that come here and tell us how other makers are selling from our brochures. We ask them, "is it (their furniture) meeting the standards?" and invariably they say no. Still it's better they do it our way, rather than produce chipboard furniture. You can't worry about that sort of thing. You just have to be good at what you do, have your place in the sun and that's it.'

Griffith Furniture with its 'craft' look has been produced as a stock range which has sold well throughout Australia to a clientele which is typically affluent and voices concerns about quality and the 'correctness' of the material. Surely there can't be any other operation quite like TreeTops in Australia which handles timber from log to finished product and then markets it in such a unique way. Forestry, sawmilling, furniture manufacturing, wholesale, retail, gallery and restaurant operations coexist quite happily about ten kilometres from Murwillumbah.

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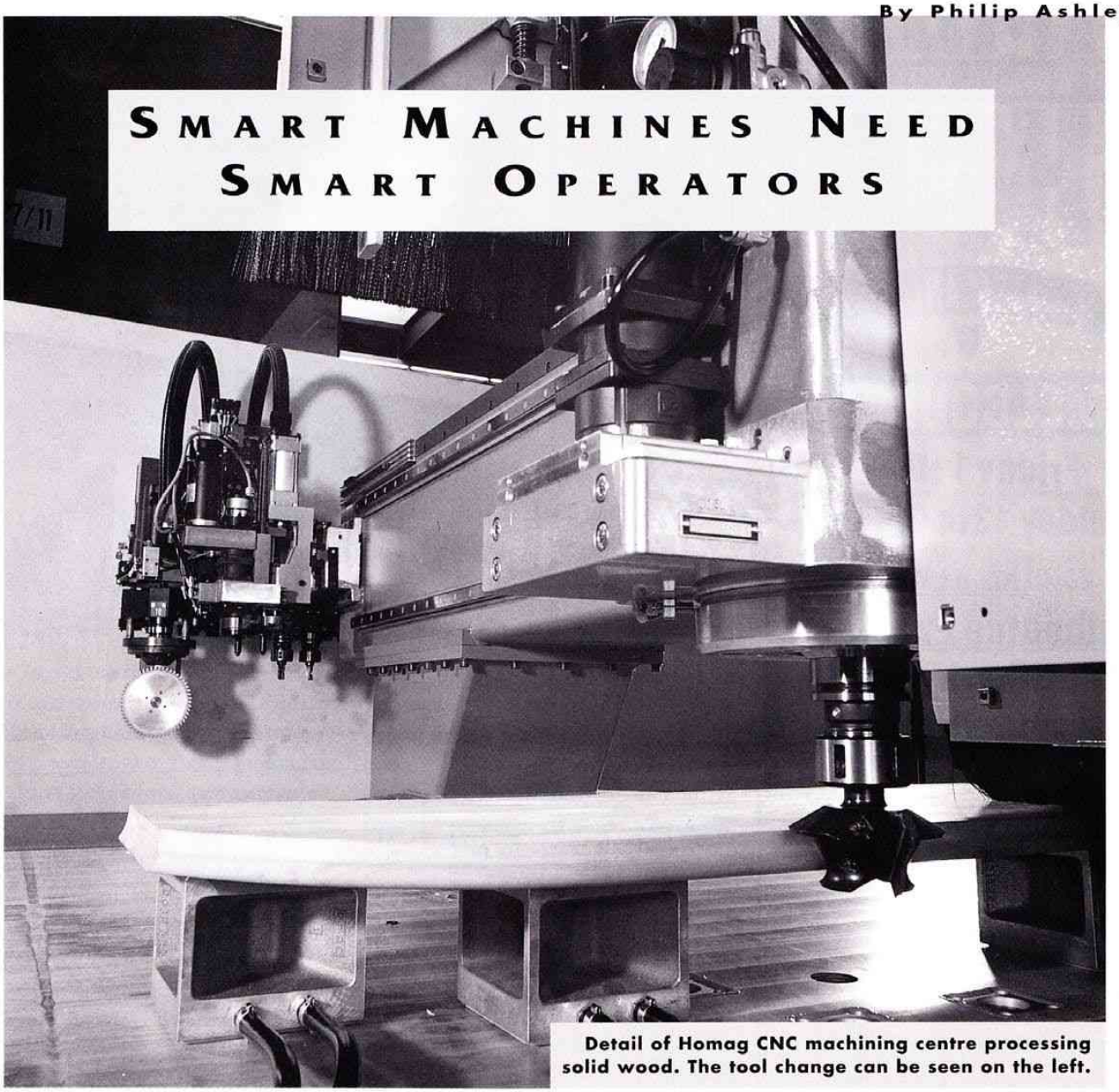
By Philip Ashley

Smart Machines Need Smart Operators



Detail of Homag CNC machining centre processing solid wood. The tool change can be seen on the left.

Technology is like an express train, it just keeps on coming, and while woodworking expertise has been more or less regarded as traditionally based, advances in technology have meant that there can be vast differences between the workshop of a mere twenty years ago, and the factory of today.

Within the last three years a great deal of Computer Numerically Controlled (CNC) machinery has been installed in Australia. In many cases however, inadequate planning has resulted in these machines becoming little more than very expensive workbenches. Fortunately there are ways to prevent this.

CNC Machinery

Modern woodworking machinery has been designed to handle new materials, such as particleboard and MDF, and cope with new production demands. Competition from cheaper imported goods, and the need for better labour utilisation and productivity, has driven manufacturers to seek out technology that can deliver more in less time.

CNC machinery adapts to all types of materials, but some machines are more suited to solid timber than others. Today you can buy a CNC saw, tenoner, shaper, moulder, edgebander or sander. Reichenbacher of Germany even make a CNC bandsaw.

Apart from the beam saw (which is designed to cut manufactured boards to close tolerances at great speeds) there are two major pieces of CNC equipment in use in Australia: the point to point and router machines.

The point to point evolved from a CNC drilling machine which had saws, routers and other tools added over the years. The CNC router now has added drilling, sawing and sanding options and is much more robust, but generally costs more. While there will always be spirited discussion on which is better, they are generally both now classified as 'machining centres'.

If you are making knock down furniture for customer assembly, you'll need a drilling machine with one router. If you are manufacturing a range of goods in solid wood and manufactured board, you may require a machine with reasonable strength, drilling, sawing, and

routing options, and perhaps a tool change. If you are going to machine mostly solid wood, you'll need a machine with solid construction and several routing tools. Both the router and point to point machines offer exciting production possibilities—look at both before you decide on your purchase.

Getting More

Traditional machinery worked by hand is only capable of limited improvement in quality and productivity. CNC equipment however, has few limitations and offers one thousandth of a millimetre accuracy (if you can measure that well), fast set up, repeatability over a number of runs, safety and small series production.

Your decision to go hi-tech will be made on the basis of expected increases in productivity which will offset the initial investment. The trick is to get the machine working in your favour as soon as possible.

When I first learnt to program a CNC machine I worked for a while in the factory of a major bedroom furniture manufacturer. After buying the CNC router and having to come to grips with the new technology the manager admitted to me privately that he felt his purchase had been a bit too entrepreneurial. It took a long time to learn to get the best out of the equipment, even though eventually the outcome was a happy one. The factory is now kept supplied in timber components by just three machines; one router and two point to points.

Training

I cannot over-emphasise the importance of well trained operators: inefficient operators make machines work inefficiently. Make sure you get training with the machine, and don't let the trainer leave until you are satisfied. We forget up to 50% of what we are told, but only 30% of what we experience, so get some training, practise for a few days, then get the trainer back for another session.

Get some pre-training from a technical college before machine delivery. After the college course, the training given by the machine supplier is more easily understood and it gets the basics under your belt quickly. Stories abound in the trade of new operators 'practising' on brand new machines and creating some very dynamic router patterns on very expensive aluminium work tables. These are powerful machines that need smart operators. Consider sending staff overseas for training from the manufacturer. Balance the cost of airfares and accomodation against repair bills, lost time and inefficient usage—and someone's off to Italy.

Planning

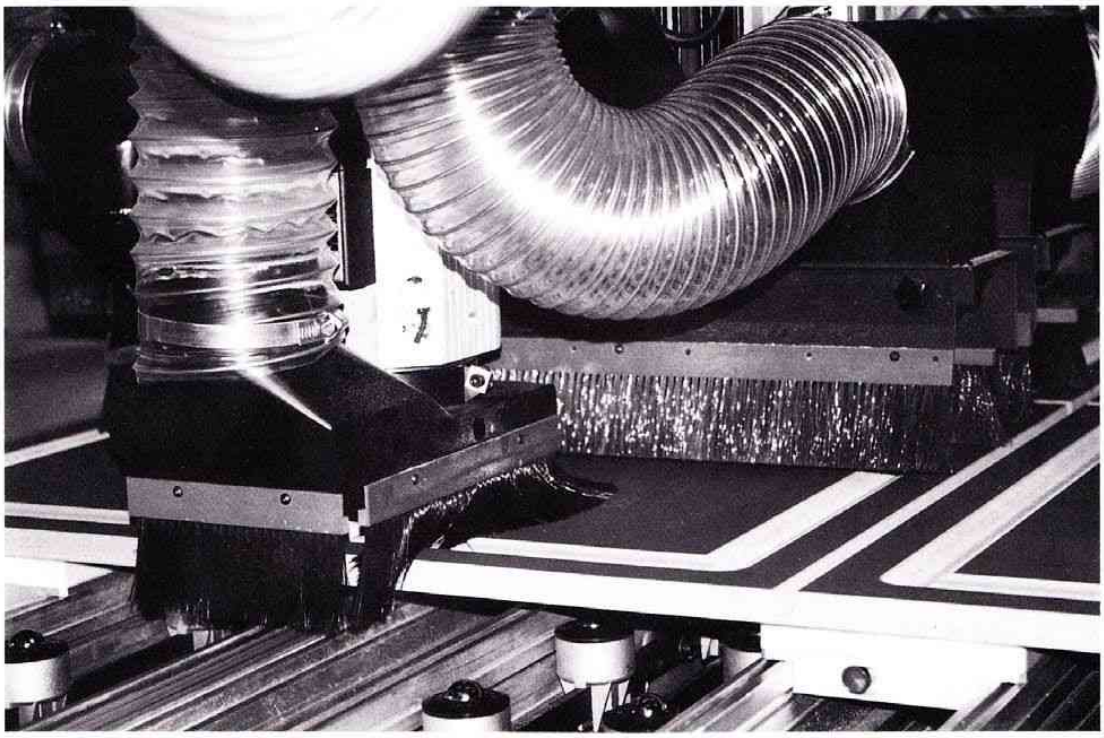
Plan your production around your new equipment. Use your CNC machinery inefficiently and your whole production will be inefficient , especially if new equipment replaces several other machines in key production areas. While you will eventually find you need less machinery, staff levels may remain the same, with a swing towards assembly.

Start off with jobs that are fairly easy to program and quick to change over, such as table tops, bedheads, or drawer fronts. Your staff will gain confidence and free up some of your shaping operations, for which you will use fairly skilled operatives. Complex processes such as legs, curved chair backs and carvings will test even seasoned programmers, and require jigs and fixtures. Setting these up requires skill but you will get there, because it's not really all that hard.

Tooling For CNC

Tooling is manufactured mostly for broad use to keep costs down, but these tools will not give optimum performance on CNC equipment. Having just spent well over $100,000, the last thing you probably want to do is to re-tool. Unfortunately without the right operating criteria, which includes the right tools, the machine probably never will perform to its true potential.

It's like buying a race car that is capable of reaching speeds of up to 300 km/h and fitting tyres that are only



rated to 120. Your machine may be capable of twice, even three times the present feed speed. To follow the analogy, money saved on cheap tools will make a mockery out of your decision to go hi-tech, especially when you consider that tooling costs only account for half of one percent of manufacturing costs.

Drilling And Sawing Tools

The correct tool for your CNC machine will depend on the end product. For drilling applications, most existing tooling will work quite well, but the life of the bits can be cause for concern. The numerically controlled movement of the spindles will tend to make tooling last longer, but for continuous work on manufactured boards diamond tipped tooling will be most cost efficient.

Diamond tools costs a lot more, but one will last the life of thirty comparable TCT tools, which would need to have been sharpened almost 600 times! On your beam saw, a diamond tipped blade can last up to three months before it needs sharpening. Anyone who has ever spent time lining up scoring blades on a beam saw will appreciate leaving the blades in the machine as long as possible.

Routing Tools

A standard router bit will fit into the collet of a CNC machine, and will last slightly longer than a similar tool used in a hand fed machine. It's in the finished product that you'll notice the difference. A standard bit is quite small, and has minimal cutting angles, the face of the tool contacting the work at almost 90°, giving a scraping action which will dull the tool very quickly. Here too, a diamond tool can be very economical on manufactured board. De Beers claim that their diamond router cutters last for up to 12,000 pieces compared to 42 pieces on a TCT tool—a staggering performance differential.

Tool Holders

When working solid wood on CNC machines, you will be better served by investing in specially manufactured tool holders. All of the major suppliers offer a good range of these 'cutterheads'. Some serrated backed knives are held in place by grub screws, others are solid profile heads and can only be used for one shape. One that I like is a tool that uses a thin TCT or high speed steel cutter with a mild steel backing plate both ground to the same shape. The positive skewed cutters are held in place by two grub screws, tightened with a handled allen key. The new Leitz ProFix system can also be used on CNC equipment, and the removable tips can be used on your other machines as well.

Software

Cad Cam software offered by the machine suppliers ranges from terrible to very good. Compatibility is a great feature to look out for. It's obviously an advantage if your software can communicate with other programs, or machinery. If you buy software for your machine, make sure that it has the option to transfer files to other Cad programs. Usually, it will need to produce the toolpath to a file with a DXF extension. This type of file can be read by all the better Cad Cam programs, including Autocad.

Most machine manufacturers offer Cad Cam software, but if you are looking for an independent supplier, take a look at the Procad program. It's about the easiest to use, communicates with all other software, and is being used by most training colleges in this country.

Remember to back up your work frequently and always keep backup copies off the premises. Make sure you're not infringing any copyright laws, even if unintentionally. Finally, choose a machine with multi-tasking. This means that you can enter data while the machine is running an existing program.

Best Usage

With CNC and an automatic production line it is possible to reduce an eighty person production crew to just eight. We don't have the volume of work in this country to warrant this just yet, and it's probably a good thing too, but the potential is there.

Apart from the beam saw, the modern CNC machine is a multi-purpose machining centre available 'off the shelf'

with drilling, routing and tool change, or customised like a tailor made suit. If you are a first time buyer it is a good idea to talk to a CNC user, most are very happy to share their experiences.

The best set up is a machine with Cad Cam software, many tooling options, and a generous working table. The software will enable you to pre-plan programs and so avoid machine down time. Good tooling options, which usually involve an automatic tool change, will eliminate manual tool adjustments and installations. A generous worktable is more important than you might think. When you find out what the machine can actually do, (practically everything) you will need a big enough table to do it on.

If you are considering a used machine (suppliers get many trade-ins) make sure it's really the machine you need, because what you need is much more important than what you can afford. It is definitely worthwhile getting the machine checked by a qualified engineer. Check that it does all you want it to, and has sufficient memory for all your programs. New and updated software generally requires more and more memory to run.

Most CNC machinery is purchased to replace machines and staff as well as to save time. If not used properly the machine will do none of these. Manufacturers expect more operating flexibility, an extended range of machining tasks carried out at the one cycle, and a reduction in workpiece handling. Make the right choice of machine, get well trained and conscientious staff, use good tools and you will be well on your way to achieving high productivity.

CNC Machinery Course Guide

Homesglen Inst. TAFE
Box 42 Chadstone Vic 3148 Ph:(03) 9564 1850 Fax:(03) 9564 1852
Automatic Panel Saw (Beam Saw) *12 hrs, $250,* ***CNC Router*** *40hrs P.O.A.,* ***CNC Point to Point Machining Centre*** *30 hrs $350,* ***Advanced Point to Point*** *12 hrs, $190.*

Launceston Inst. TAFE
PO Box1308 Launceston Tas 7250 Ph: 003 362301 Fax: 003 342528
Point to Point Border *32 hrs, $124,* ***CNC Routers*** *40 hrs, $120,* ***Inroduction to CAD*** *40 hrs, $75*

Brisbane Inst. TAFE
Fulcher Rd, Red Hill Qld 4059 Ph: 07 3259 9050 Fax: 07 3259 9075
CNC Routers *60 hours,P.O.A.,* ***CNC Machines Point to Point Borers*** *32 hours,POA*

Hunter Inst. Technology
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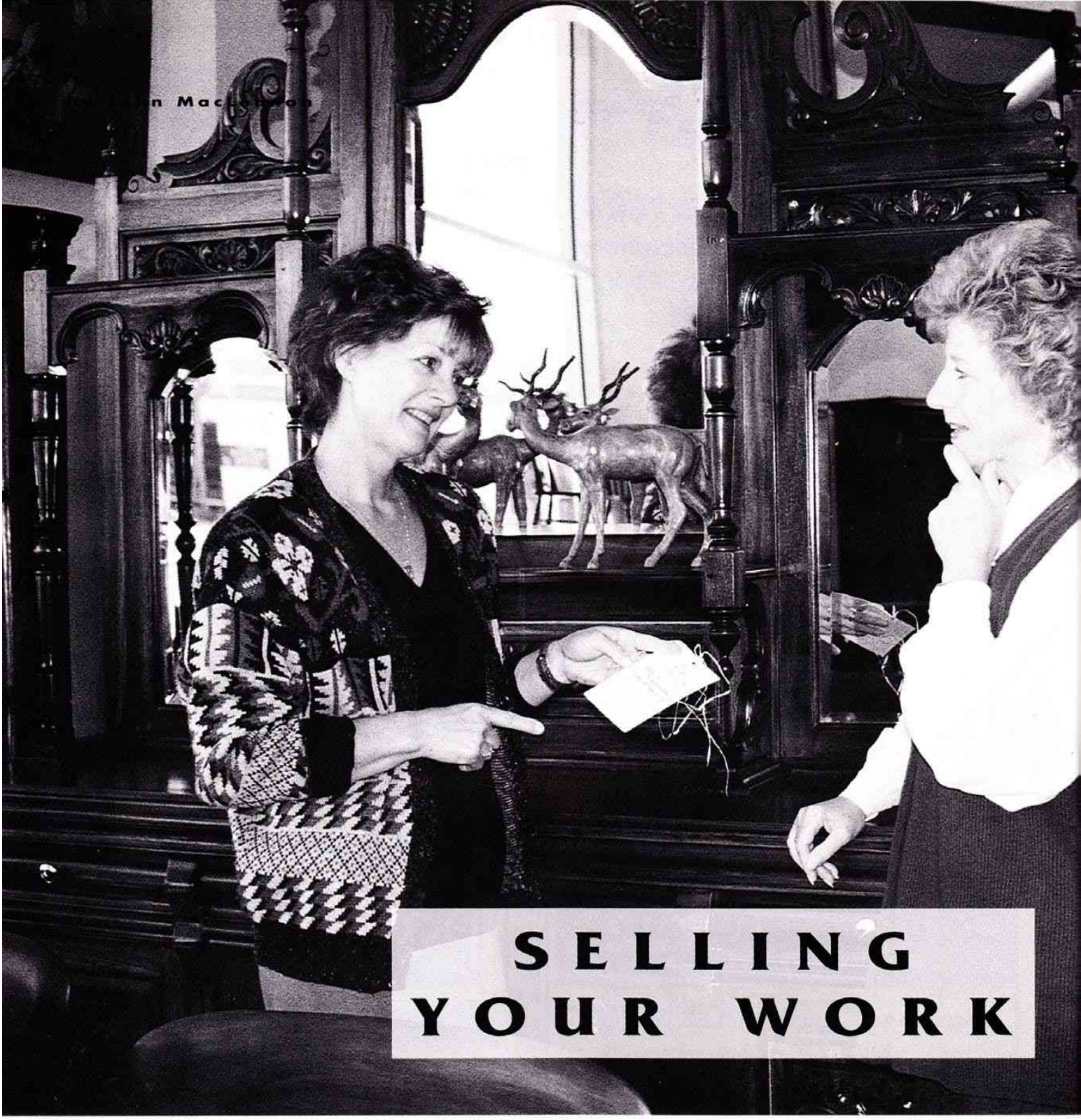
Woodmachining *3 years/814 hours, $480,* ***Woodmachining Post Trade****,216 hours, $160*

Lidcombe College
East St, Lidcombe NSW 2141 Ph: 02 9749 3747 Fax: 02 9749 3499
Woodmachining Introduction to CNC Router *24 hrs, $645*
Woodmachining Introduction to CNC Point to Point Boring Machines *24hrs, $645*



SELLING YOUR WORK

Actually selling the pieces we create is, for many of us, one of the hardest aspects of designing and making furniture or craft items. John MacLennan discusses why.

This is not necessarily because we can't bear to part with something we have spent countless hours mulling and sweating over, labouring and coaxing it into existence only to see it disappear in someone else's arms. Rather it is because we would far prefer to be back in the workshop than telling a potential client how well the piece is made, how carefully thought out is the design and what a wonderfully talented but modest bloke the craftsperson is. After all, blowing your own trumpet is un-Australian!

But, to remain in business (or make a hobby profitable) you must sell your work, and to sell you must be able to point out the features and benefits of each piece and to communicate your knowledge and enthusiasm about it.

The natural rationalisation just about all of us make is to tell ourselves that the work will sell itself if it is good enough, or priced right or presented attractively. But the place soon becomes a bit overcrowded with unsold good work at the right price nicely presented.

At Early Settler Furniture, Springwood.

I suspect that most people who take their woodworking seriously enough to present it to the public and want to sell it are by nature not the outgoing hyped-up types we see on TV flogging cars, steak knives and encyclopedias—the ones we imagine super salespeople to be.

As a group we are more reflective, more introspective and quite uncomfortable with the idea of talking someone into buying something they don't particularly need. Fortunately, to successfully sell our work we don't need hyped-up skills—which is good because I once tried to flog encyclopedias in this way and proved to be a dismal failure.

There are a wide variety of selling situations that we can find ourselves in. At the lower end of the pyramid, say at a craft market, speed and price are important. You only have a few minutes to convince the customer to buy. At the top of the pyramid—in a gallery or workshop/showroom for example, price is sometimes almost irrelevant and potential clients sometimes want to take forever to make up their minds. But there are some things common to all selling situations.

Features

The salesperson, whether the maker or not, must know the product intimately and be able to point out those aspects that make it different or better than others on the market. This doesn't mean a lengthy discourse on the pros and cons of dovetails or whatever, but an understanding of what features of the product will appeal to the client and pointing them out. For those of us who design and make to order we must learn to listen very carefully to our potential clients to understand just what features they really do want in their dream piece and reinforce this by repeating this information back to them in your own words.

Benefits

Here we start to delve into psychology—benefits are in the eye of the beholder! A benefit is what the client will feel good about if they buy the product. It can be as simple as them thinking they've got a good deal, or as complicated as feeling smug and superior about buying an expensive handcrafted piece of furniture that they think is better than their neighbours'.

Closing The Sale

This is the nitty gritty of selling—where you get the order, the money—or nothing at all. Timing is very important. We probably all hate pushy salespeople—they're the ones who try and close a sale too soon. But if you delay too long the client is lost. Every customer is different and there are no hard and fast rules anyone can give as to when to actually ask for the order or to start writing out the invoice.

There are a few signs though. When they are coming close to a decision most clients will ask questions or even pose potential problems about the work. Questions like 'what kind of guarantee do you offer?' or 'what is the delivery time?'. If these questions can be answered satisfactorily then that is the time I usually reach for the order book and ask for the correct name and address for the delivery.

Venue

Over the last few months I have sold my work in three totally different environments with quite different responses.

The Workshop/Showroom

Nearly all my sales are made direct from the workshop and most of these are commissions for new work rather than the pieces on display. When rummaging through my storage racks recently I was flabbergasted at how many prototypes, samples and exhibition left-overs I discovered so I decided to have a workshop sale to clear this excess stock.

A series of envelope-size advertisements in the local paper featuring a coffee table brought in several hundred people many of whom (without me having to do much selling at all) took away odd chairs and other bits and pieces that had been cluttering up the place for far too long. The prices were attractive and I was kept busy talking to people who came for a bargain and ended up ordering a cabinet or a dining suite. I am sure it was the atmosphere of the workshop, no selling pressure and a rather hassled designer/maker that made this sale a success. Four months later I am still taking orders from people who visited that weekend and the commissions gained far outweigh the cash sales on the day.

Retail Outlet

My sales through galleries have been disappointing to say the least over the last couple of years, so when the opportunity came up to combine forces with a local potter and an art materials retailer to hire a hall and convert some of our stocks into cash I didn't hesitate to recall my remaining consignment stocks from the galleries and attempt to sell it myself.

This time we direct mailed to past clients and followed up with advertising in the local newspaper. Several thousand customers responded—much to my surprise—and a healthy proportion were buyers. The big difference to the previous workshop sale was that no-one even inquired about commissioning work.

'Home Show'/Exhibition

I have participated in several high profile exhibitions and a couple of 'home shows' and discovered that the costs involved far outweighed the returns. That was why I was fairly dubious about participating in another. But this home show featured designer/makers like myself so I took the plunge.

I sold absolutely nothing from the floor over the three days of the exhibition but have since accepted several good and profitable commissions as a direct result. Even though I took all my stock home I was actually selling the idea of furniture being made especially for my clients. The sales were finalised when the customers came to see me at the workshop, drawings and quotes prepared, and the order book produced.

Customer Types

Over the three sales situations discussed above many different types of potential buyers stopped to look, some to talk and admire and some to criticise. I have long given up trying to guess which ones will become customers and treat everyone with the same respect and enthusiasm. So often I have had people I had wrongly thought were too poor or not really interested come back with a lovely order, or refer their friends or relatives to me, that it would be unwise indeed to dismiss even the most unlikely prospect.

When couples shop together one is more likely to be the decision maker but both need to be convinced. For major or expensive household items such as furniture women quite often do the research and make the initial choice and then bring their partner back to make a joint decision. It is obviously important to make a good impression on that initial contact or they will certainly not be back.

Making The Right Impression

Part of making that good impression is how you display the goods you have for sale or the samples from which you take orders. If selling direct from the workshop a bit of sawdust and chaos can add to the atmosphere and even be a refreshing change from the carefully manipulated retail selling environment. But a clean area where customers can quietly discuss their purchase or view good photographs of past work is an important consideration.

If you have a separate showroom or display area then it must be kept tidy, well lit and spotlessly clean, or a rough and careless image will be projected.

Your own image will leave an impression on the customer too. Dusty overalls are okay in the workshop environment, but will not engender confidence in a gallery. Self confidence and the body language associated with confidence are part of your image and the potential customer needs to know that you are confident in getting your part of the bargain right.

Conclusion

As makers we have a natural advantage over agents or other salespeople in that we already have that knowledge and enthusiasm, but we do need to communicate it to our customers without too much shyness or modesty.

To make a sale the potential customer needs to become aware of the product through advertising, exhibition or by word of mouth referral. No matter how good the product is, it still has to be sold and this is where the art of selling comes into play. Genuine enthusiasm for and knowledge of the product, together with an ability to listen to your client and hear what they are really asking are the key ingredients to successful selling.

By Lester Oldham

THE ALTERNATIVE TO TEAK

Teak (*Tectona grandis*)

Vitex (*Vitex cofassus*)

Iroko (*Chlorophora excelsa, regia*)

The mention of teak conjures up an image of Indian elephants stacking logs with their trunks. To others, teak is associated with the classical modern furniture of Scandinavia. In the 60s and 70s teak was *the* timber for furniture, wall units, and general cabinetry both solid and veneered. Scandinavian style, oil finished dining suites and lounge furniture were made popular by companies such as Tessa, Fleur, Parker, Chiswell and Danish Deluxe. Its beauty and durability have also ensured teak's widespread marine application. Like oak and mahogany, teak (*Tectona grandis*) is a 'benchmark' timber which has set standards for strength and beauty. Lester Oldham describes some of the properties of teak and some of the timbers which may substitute for it.

Teak grows throughout the Indian subcontinent and South-East Asia and has for centuries been used for boat building by the Arabs, the Chinese and later the Europeans. Its strength and durability have made it a frequent choice for heavy constructions such as bridges. As a consequence of demand it has rapidly disappeared from its origins and plantations have now been established throughout Malaysia, New Guinea and Indonesia.

The most prized Burmese teak is a uniform golden brown colour without markings. Most other teak is rich brown with darker chocolate brown markings with pale yellow sapwood. A 'very durable' classification combined with other qualities such as a high strength grading, widely recognised stability in service and resistance to fire and acid add to its aesthetic appeal.

Relatively easy to work, the wood contains an oleo-resin which gives it a greasy feel (and a distinctive odour when freshly cut). It is probably this factor which has lead to its widespread application in ship and boat building, decking, rails and hatches. It can be nailed satisfactorily, however, the oily nature can provide gluing problems. The fact it resists acids and is not corrosive to metal fixings, like oak, has led to its wide application in fine furniture and cabinet making, interior and exterior joinery, flooring and garden furniture.

The gnarled logs give little hint of the beauty inside. The timber is precious and even small off-cuts are saved for turnings and ornaments. Scarcity and rising prices of teak have led Australian buyers to consider two other species, vitex and iroko. Vitex is also known as New Guinea teak, whilst iroko is alternatively called odum or 'African teak'. While both resemble teak in appearance and working properties, neither is botanically related.

Vitex, like *Tectona grandis*, is good shipbuilding timber and is highly regarded in New Guinea for this purpose. It is a fraction of the cost of teak and available in Australia in a range of sizes.

Possessing the qualities of strength, durability and stability required for marine purposes, iroko looks far more like teak than does vitex. Despite similarities in colour, iroko cannot match the beauty of teak. Iroko originates in West Africa and is easier to work with cutting tools than teak, due to a lower silica content. Because of this it has been widely used for high class joinery. 'African teak' and 'poor man's teak' are both aliases of iroko, which is so dense that it is a favoured timber for laboratory bench tops and containers

for radioactive materials. Iroko and vitex are considerably less expensive than teak.

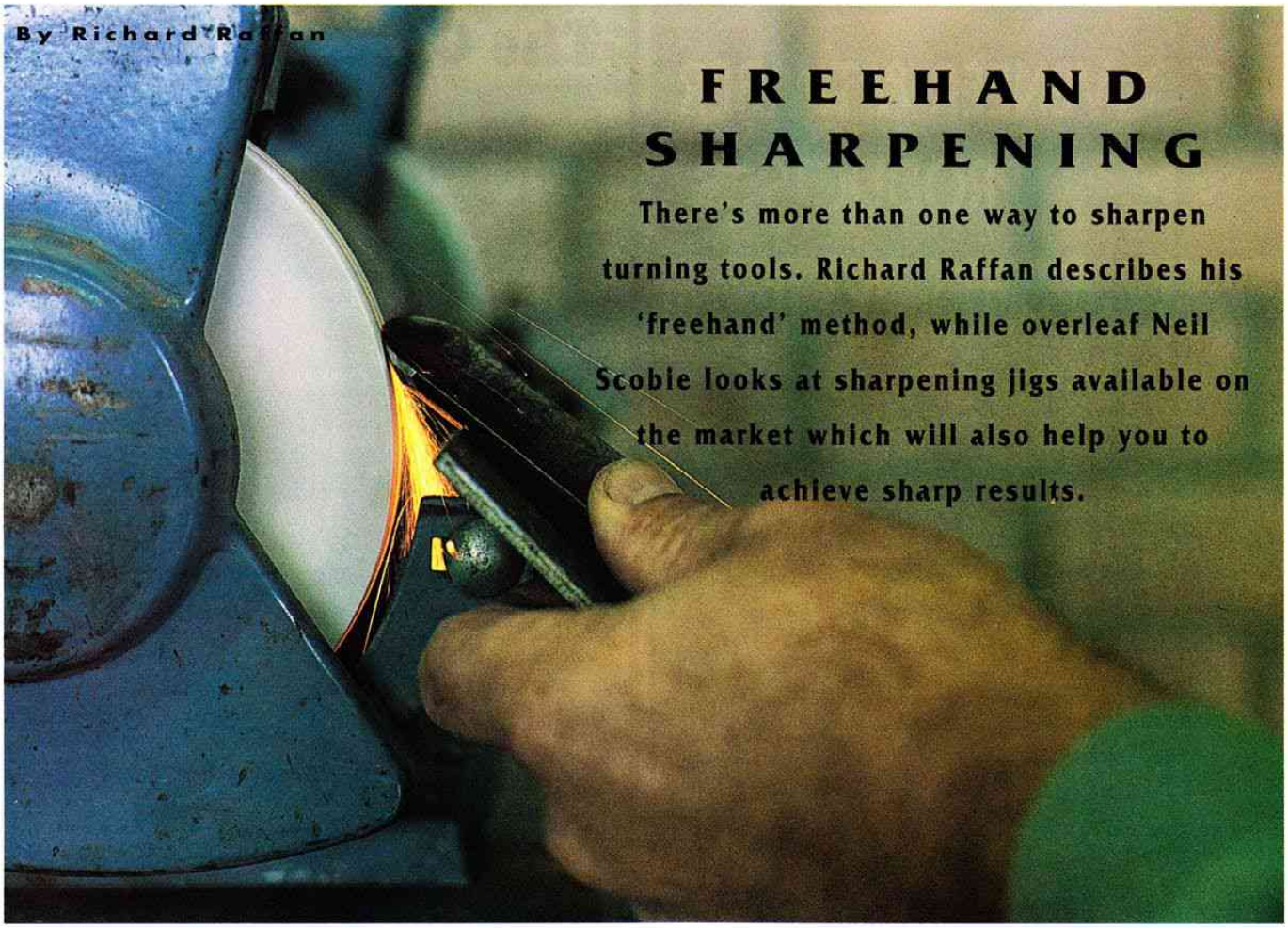
B. J. Rendle in *World Timbers*, rates iroko as harder than teak but slightly inferior in other strength properties. In *The International Book of Wood* Hugh Johnson expresses the view that if the grain of iroko is straight its stability in use is slighly superior to that of teak. It definitely has a superficial resemblance to teak, but the distinction lies in its far coarser grain and absence of a greasy surface, so familiar in sawn teak. As a bending timber iroko is classified in the 'moderate' range and is by no means as suitable for this purpose as teak. Iroko bleaches in a similar fashion to teak when used in outdoor applications such as garden furniture or decking.

Iroko has a high resistance to both insect and fungal attack and is used in West Africa for coachwork and sleepers as well as boat building. Other uses extend to flooring and stairs. It is reported to be both termite and 'fire resistant'.

Lester Oldham is Director of Australian Furniture Timbers.

Average prices per cubic metre at the time of printing: teak—$5,900, iroko—$1,500, vitex—$3,000.

	TEAK	VITEX	IROKO
Tree Height (m)	40	33	50
Weight (lb/ft3)	40	45/55	40
Mechanical Properties	hard medium density medium bending high crushing low stiffness low movement in service	heavy & moderately hard dense bends well high crushing medium stiffness low to medium movement in service	medium medium density medium bending medium crushing very low stiffness small movement in service
	medium resistance severely blunts cutters	moderately difficult to cut but planes to a smooth finish	satisfactory with moderate to severe blunting on edges
Durability	very durable	heartwood very durable	heartwood very durable
Colour	golden brown	grey olive yellow-brown to deep brown	golden orange to brown



By Richard Raffan

FREEHAND SHARPENING

There's more than one way to sharpen turning tools. Richard Raffan describes his 'freehand' method, while overleaf Neil Scobie looks at sharpening jigs available on the market which will also help you to achieve sharp results.

Once I met a woodturner who had three sets of tools: one in use, one spare, and one in the mail on the way to be sharpened professionally. I wondered at the expense, and then as to how he managed, given the staggering amount of wood that gouges and even chisels can remove in a very short time. After all, a day of rough turning bowls can easily produce a couple of wool sacks full of shavings and tools lose an edge quickly. Everyone knows that sharp tools are easier and much safer to use than blunt ones, so it's essential for turners to learn how to touch up an edge which can be used straight from the grinding wheel.

So what is sharp in a woodturning context? If you're a spindle turner it will mean a finely honed edge akin to an old-style cut throat razor which is ideally suited to the easily worked straight grained stock typically used for traditional turned spindles. For bowl turning a much coarser edge is preferable straight from an 80 or 100 grit grinding wheel, complete with a small burr. By keeping the inside of a gouge flute or the top of a scraper polished or honed you'll maintain a finer and more controlled burr.

This is not an article about 'correct' bevel angles, the rule being that there is no rule, no single set of correct angles for woodturning tools. In general you can't go wrong with bevels around 45° on gouges and scrapers and a more acute 30° for skew chisels.

However, bevels are often ground for specific jobs in a specific situation and reams have been written regarding bevels in numerous books and magazines. Consequently this article is primarily about how to manipulate a tool so that you can grind any shape you want. The secret, as with woodturning in general, is to develop a light touch. Don't force the tool against the grinding wheel.

The Grinder

Since most amateur woodworkers seem to use a double ended 150mm grinder for sharpening their tools, this is what I'm using here. Grinders tend to come fitted with carborundum wheels which are fine for carbon steels, but just adequate for today's high speed steel turning tools. These are better ground using the softer white or pink wheels formulated for that purpose. Have one around 36 grit for reshaping and the other 80-100 grit for finishing off and touching up an edge.

A wheel will glaze as particles of metal build up in the surface severely reducing its cutting efficiency and accelerating the heat build-up which blues the tools. Grinding wheels need to be dressed using a star-wheel dresser or devil stone or one of the new diamond amalgam dressers which are fearfully expensive but a 'must have' the moment you've seen one in action. I like a slightly convex wheel.

Manipulating The Tools

Most of the problems encountered by novice woodturners on both lathe and grinder result from a bull-in-a-china-shop, when-in-doubt-use-force approach. At the lathe this, combined with a blunt tool, leads to catches and a general lack of control. At the grinder it

means ragged edges of a colourful blue and straw hue.

When grinding freehand, you gain maximum control of the tool by pinning the tool to the rest, so that you can pivot the edge into the wheel. Think of the tool as an oar in a rowlock. There are basic four steps:

1 Place the tool on the rest, pitched well up and clear of the wheel.

2 Pinch the tool to the rest between finger and thumb.

3 Pivot the tool forward by raising the tool handle so that you bring the bevel heel into contact with the wheel (photo 1). As the bevel contacts the wheel, begin to move the tool back and forth sideways across the rest so that all parts of the bevel contact the crown of the wheel.

4 Continue to raise the tool handle and so pivot the tool into the wheel until sparks come over the edge. Go gently and steadily without pushing the tool hard against the wheel. Minimal contact will do the job, leaving the tool cool enough so that, straight from the wheel, it can be held 20 mm back from the edge for five to ten seconds.

For fingernail ground gouges (see photo 2) you'll need to ease the tool forward and up the rest whilst rolling it. Roll the tool with your lower hand (on the handle), and keep the blade pinched to the rest with minimal tool pressure against the wheel. Think of pressure similar to that required when rubbing your hands under an air dryer: barely touching.

For scrapers I tend to pivot the blade on my thumb as in photo 3, although even in this position I manage to keep some pressure on top of the tool.

Bevels

Ideally, no matter what its angle, your bevel should be a single curved concave facet which matches the grinding wheel. This is easy enough to achieve, especially if you use a rest or jig which presents the tool at the desired angle to the wheel as in photo 4. Here a 25mm square end scraper is pinched to the rest between finger and thumb and pushed forward gently up the rest against the wheel until sparks come over the top of the tool.

However, there is a problem with 150mm diameter wheels or smaller (and wheels will wear). The smaller the wheel the tighter the concave curve of the bevel. On larger tools with long bevels the angle of the edge can become too acute and easy to burn during grinding. Such edges are also liable to bend or chip when used on many of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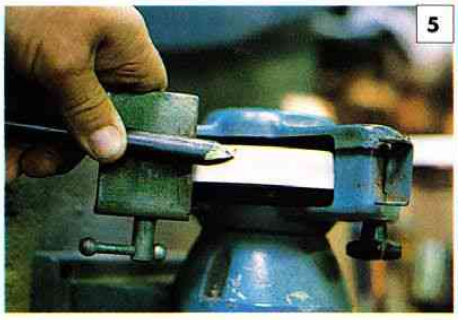
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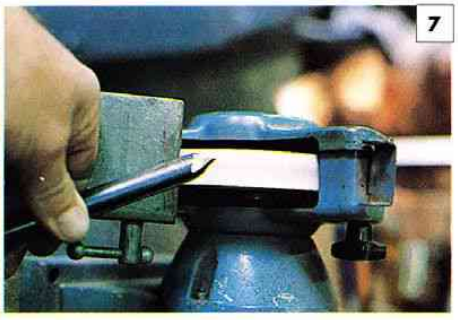
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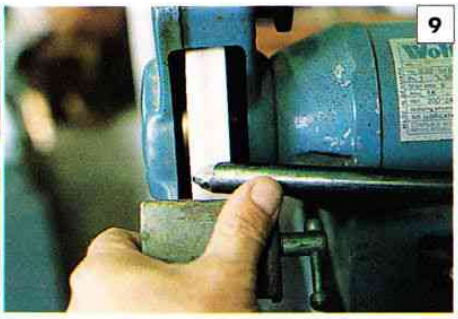
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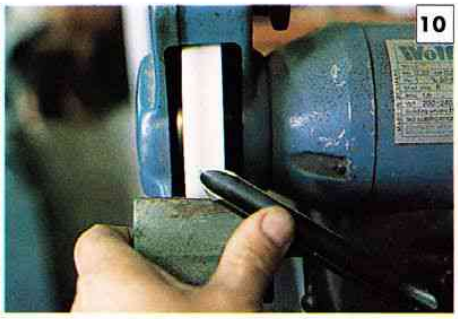
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our tough hardwoods like the inland acacias or even jarrah burl. In this situation forget the 'perfect' bevel. The tool should still cut well provided the bevel is flat to concave. The real bar to a tool cutting well is the micro bevels near the edge (see photo 5).

Things To Look Out For

If a tool isn't cutting, look for flat areas or micro bevels which catch the light as on the 20mm skew chisel in photo 6, or the tiny facet on the edge of the gouge in photo 5.

A common error on fingernail ground gouges is to remove too much metal from the sides as you roll the tool over (photo 7). This might create a very good detailing tool, but wastes the potential of the fingernail grind which needs the edge to be convex (photo 8). A gouge with an undulating edge should set on its side (photos 9 and 10), so that the edge can be removed to create a silver flat area where the edge should be. Grind this away and you have a perfect convex fingernail edge ideal for spindle work detailing or roughing a bowl profile.

A Final Reminder

Many of the problems novice woodturners experience are associated with forcing less than sharp tools into the wood. Sharp tools won't solve all your woodturning problems, but the combination of a keen edge and *lack of force* as you move the tool into the wood will increase your enjoyment of the craft.

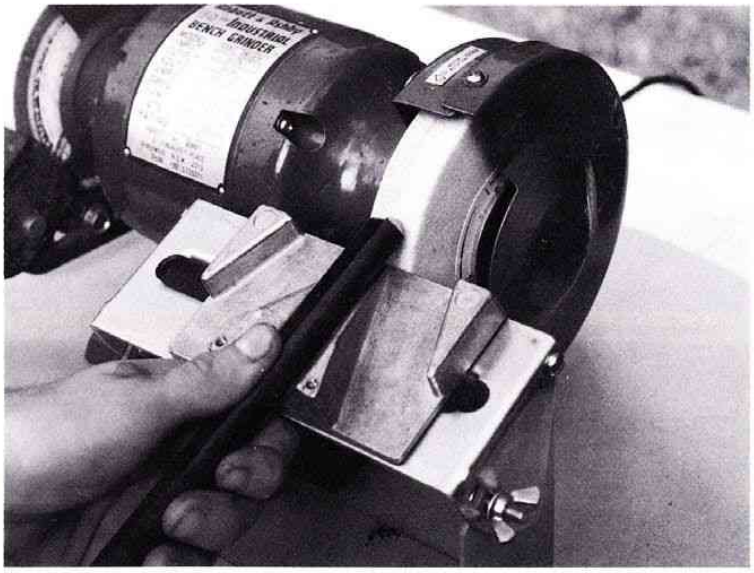
If the tool isn't cutting as well as you feel it should, first adjust the angle of the edge on the wood. Often this will be just a very slight rotation of the tool or pivot off the bevel shoulder. If you don't get the desired cut, don't use force and push the tool harder into the wood: go to the grinder.

Some woods are very tough or full of silica which takes any edge clean off the tool in seconds. At such times touch up the edge on the fine grit wheel and carry on turning. You won't drastically shorten your tool and in time you'll do the job with a single pass. All it takes is practice.

By Neil Scobie

GRINDING JIGS FOR TURNING TOOLS

There are probably as many ways to sharpen tools as there are woodturning professionals, and most have their own ideas on shape as well. With time on your side you too can learn to sharpen and shape your tools freehand, but for easy, consistent results there are now several sharpening jigs and accessories on the market which are worth looking at.



Sharpening a bowl gouge in the V-section on the Hiturn Sharpening Centre.

I sharpen my turning tools with the aid of a larger platform table on the grinder which I can adjust to whatever angle I desire. I was however very interested to test some factory-made guides and see what results they produced.

Hiturn Sharpening Centre

This unit comes from New Zealand manufacturer Teknatool and retails for $68. It attaches to the bench in front of your grinder by bolts with wing-nuts which allow distance between jig and grinding wheel to be quickly adjusted. Adequate instructions are supplied for set up and operation. The angle of the table can be changed by loosening two wing nuts on each side of the angle table. Table height is usually set around 10mm above the centre height of the grinding wheel to allow for accurate settings. A slot in the platform allows the tool jig to slide sideways when sharpening tools wider than the wheel and stops the wheel wearing unevenly.

For bowl gouges set the platform is set to 45°. Hold the gouge in the 'V' section of the sliding jig and sharpen each side by rolling from one side to the other. This gives a cutting angle that cuts efficiently both inside and outside a bowl. If you like to grind the wings back to a longer edge, you will need to first remove the jig from the platform.

Spindle gouges can be sharpened in the same way except the platform is

set to 30°. As spindle gouges need to be sharpened with a continuous bevel you will need to roll the gouge from one side to the other in a continuous action. The bevel produced with this jig will cut well in most situations. Longer side bevels can be achieved by running the side of the gouge up the wheel while still supporting it in the back of the 'V'.

For sharpening skew chisels the platform is set as far down as it will go to 15°. By using the angled shoulders on the sliding jig you can sharpen both sides of the skew equally with one hollow bevel. This function is quick to use and gives very good results. The jig also comes with spring loaded clip which can be used to hold the skew chisel down.

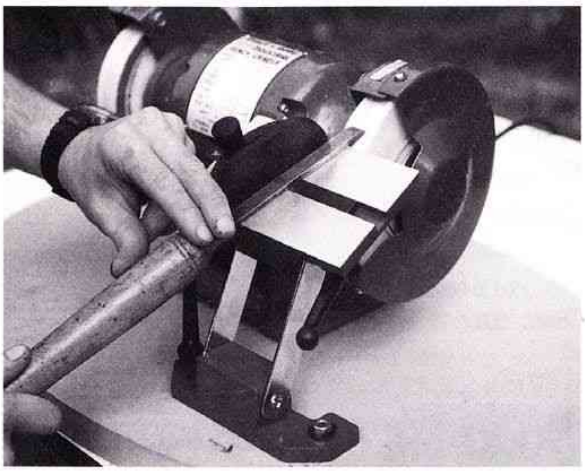
Scrapers can be easily sharpened by setting the platform to 60° and ground without the sliding jig. To sharpen bench chisels and plane blades a new attachment has been produced by Teknatool which is basically a try square that slides in the slot in the platform. This helps to keep chisels perpendicular to the front edge of the wheel while sliding the jig back and forth.

I like this jig because you can resharpen quickly. If you were turning a bowl, for example, you would have the platform set to the desired angle. It is a simple operation to place the gouge in the 'V' of the jig and give it one or two rotations from side to side on the grinding wheel. For special shapes the sliding jig can be removed and the platform used. The only drawback that I can find with this system is that once your tools become too short the ferrule end of the handle fouls on the jig—but maybe by then it's time to buy a new tool.

Carba-Tec Tool Grinding Jig

This jig retails for $49.60. It attaches to the bench in front of the grinder with the height of the table centre equal to the centre height of the grinding wheel. The angle of the platform is quickly changed to the required angle by loosening one or both of the toggle arms. The mitre quadrant can be adjusted to your tool angle and keeps the angle constant while sliding the tool back and forth across the grinding wheel.

The jig comes with four different tool grinding templates including ones for scrapers, skew chisels, and parting tools. The manufacturers advise reproducing these templates in a stronger material such as plywood, plastic or sheet metal. The template is placed against the grinding wheel and the angle of the table can be quickly set.



Top: Tormek Supergrind 2000.
Above: Carba-Tec tool grinding jig.

For sharpening bowl or spindle gouges the table is set to the required angle, and the mitre quadrant set at 90° is used to keep the axis of the tool perpendicular to the front of the wheel whilst the tool is rolled from side to side with light pressure. If you prefer to grind the shoulders with a longer bevel the mitre quadrant can be removed and only the table used to support the tool.

For sharpening skew chisels the mitre quadrant is set to 30° and the table to 15° from the template guide. Sharpen one side, then turn the mitre quadrant around to sharpen the other. You should be able to quickly achieve a perfect hollow bevel every time with little effort. Scrapers are easily sharpened by adjusting the table to 60° or the desired angle.

This jig is simple to use, quick to adjust and accurate. If you like to freehand grind the side bevels of gouges this jig will still help you support the tool. It has the same problem as the Hiturn jig which is that short tools will have trouble reaching across the table.

Tormek Supergrind 2000

The basic Tormek whetstone grinder retails for $759 (including sales tax) and comes with a jig for sharpening plane blades and bench chisels. Tormek also make a budget version at $429. A number of accessories are available for sharpening other tools. The Fingernail Gouge Jig retails for about $83, the Gouge Jig for about $28, and a Turning Tool Jig for scrapers is $52. The instructions are easy to understand and contain useful diagrams. The Tormek grinder runs between 50 to 130rpm depending on wheel diameter and the wheel runs in a bath of water which prevents tools from overheating as it can do on 3000rpm grinders. The water also washes away the metal and stone particle and keeps the stone

'unclogged'.

The Fingernail Gouge Jig allows various sharpenings. By setting the side length setting to 4 (with 1 being the shortest length of side bevel and 5 the longest) I was able to sharpen the bowl gouge to exactly the shape I have been using. This jig is excellent for bowl and spindle gouges—you can achieve a perfect shape every time. You can mark the setting used on the handle of the gouge for quicker set up next time you touch up the edge.

The angle of the bevel on the jig can be adjusted by raising or lowering the universal support. An edge angle template allows you to quickly check the required angle setting and the recommended blade protrusion of 65mm. Once you have sharpened the gouge on the whetstone you can give it a quick buff on the leather honing wheel. This step is not necessary for high speed steel tools which are sharp straight off the whetstone.

The Gouge Grinding Jig clamps onto your gouge 40-50mm from its cutting edge and sits against the universal support. Set the bevel angle by raising or lowering the universal rail and check with the angle gauge. This jig quickly sharpened roughing gouges to a keen edge which didn't need buffing.

I also ground some of my carving tools and was able to produce razor sharp edges by buffing the ground edge on the leather buffing wheel with the Tormek honing paste supplied. The turning tool jig for sharpening scrapers and parting tools clamped easily onto the universal support. Skew chisels could be ground on this jig or in the straight edge jig. Either way you will achieve a keen edge.

I found the Tormek Supergrind 2000 to be an excellent machine which produces well ground cutting edges with very little tool wastage. From a professional turner's point of view, however, I don't know that I could spare the time to clamp the turning tool in the jig each time I sharpen. I guess you would have to weigh up the costs between wasting the tool by sharpening on the normal grinder but doing so in less time, or taking the time and saving the tool by using the Tormek.

If you are having trouble with your grinding then get one of the jigs mentioned. The Tormek did produce the best results but you will have to take into account its higher cost. Remember the Tormek is a complete system, you need to already have a bench grinder to make use of the other systems reviewed here, so allow for the cost of a grinder in your own comparison.

Neil Scobie is a professional woodturner and furniture designer/maker in New South Wales.

Suppliers
Hiturn Sharpening Centre *from The Woodturning Centre (02) 9938 6699, (07) 3844 4433*
Carba-Tec Tool Grinding Jig *from Carba-Tec 1-800-658 111*
Tormek Supergrind 2000 *wet grinding system from Promac 1-800-773-267*

By James Brook

What Are You Breathing?

Woodworking can definitely be a health hazard if adequate dust extraction and collection systems are not in place. Apart from the obvious effects of dust in the lungs, inhaling dust from timber and timber products (such as particleboards and MDF) which have been treated with pesticides or adhesives can contribute to respiratory and skin ailments

Dust can, less commonly, also generate risks of fire and explosion. EPA laws regarding air emissions in the workplace currently permit no more than 5mg of dust per cubic metre of air, so it is important that you have a system that it is correctly installed and maintained. Remember that it is the very fine dust that will reach your lungs and cause damage. If you are a woodworker and a smoker as well, reducing dust levels can only help.

The principle of dust collection is the fan-assisted separation of air and dust. The dust is deposited in a bin or silo and clean air returned to the workshop via a filter. The fan reduces pressure in the system which means the atmospheric pressure on the outside of the system exerts an inward pressure. Dust and shavings are then pushed into the collector, rather than being sucked in. The variables in system design are fan type, filter medium and the amount of air moved.

Fans

The ideal fan type is die-cast and fully machined and balanced, however, the cost of these makes them out of reach for most people. Most fans are therefore fabricated from steel and their performance depends on quality of build, the material to be handled and actual fan design. The efficiency of the fan (or impeller) will affect performance far more than motor size.

Ratings

Ratings for machines may be misleading. Horsepower is not a useful guide to extraction rate; there are machines on the market of 2hp which are rated lower for extraction than machines of 1.5hp. The basis of selection should be on the 'air moved' rating of either cfm or m^3/hr (cubic feet per minute or cubic metre per hour) which will only be achieved in conjunction with the correct filters and ducting. The basic rule of thumb for cfm rating is 500cfm per machine, although more is better.

Filters

Both the filter material and its surface area in relation to the volume of air extracted is critical. Whilst you can't have too much filter area, too little filter area will restrict air flow. Performance will be reduced and ultimately result in dust blowing out from a clogged filter back into the workplace. For general woodworking you will be limited to the traditional bag type filters made from polyester or

needle felt or the newer cartridge type filters which use either paper or non-woven polyester.

There is quite a debate at the moment over which type of filter performs best. Overseas trends favour the cartridge types on the basis of apparent better filtration ratings and certainly in Australia they are starting to come into vogue. However, some manufacturers claim that cartridge filters clog quicker, are more expensive and need replacing sooner than bag type filters.

No matter what filter you go for, cleaning is essential to maintain performance. A bag filter needs to be shaken regularly and removed and vacuumed on the inside periodically. Cartridge filters will need to be blown with compressed air from the outside regularly, and some paper filters will need periodic replacement, particularly if handling dust from wet timber. Larger industrial bag type dust systems can use automatic motorised shaking or reverse-pulse compressed air cleaning.

Ducting

The ducting from the actual woodworking machine to the dust extractor must be of the correct diameter to handle the volume of dust produced as well as maintaining the overall air volume that the extractor wants to handle. There is no point in investing in an efficient extractor if you lose 50% of the capacity through poor ducting. For example, your extractor may come from the factory with a standard 125mm inlet. The diameter of this inlet duct must be maintained by having two 100mm diameter ducts feeding to it.

You will notice in large factory systems that each machine feeds to a small duct which then feeds to a larger duct, progressively getting larger as more machines feed into it.

Your System

Within reason go for the most powerful system you can afford. A one to two person operation (including the hobbyist) where the workshop might include a table saw, planer/thicknesser, bandsaw and lathe will need an extractor rated at least in the range of 1200 to 1500cfm, which will cost between $500 and $1,200.

A medium sized workshop, perhaps with five workers using a range of machinery such as a panel saw, planer/thicknesser, bandsaw and sander, will need to aim for an optimum number of machines to be in use at any time. With this in mind, a four bag machine rated at around 2,000cfm or over would be suitable. Machines in this range will cost from $800 to $1,500

The larger factory with a wide belt sander, thicknesser, buzzer, two panel saws, spindle moulder and ripping saw will need an eight bag machine at around $2200 or should consider a cyclone system at around $4500.

Extras

Obviously ducting, gate-valves and other fittings will add to the overall cost and while the sole operator may get away with two metres of flexible hose the larger joinery will probably need the services of a specialist supplier to install a complex ducting system. Disposal of waste will need to be considered, you may be able to use your wheelie bin for small amounts but beyond that an industrial waste service will need to be contracted.

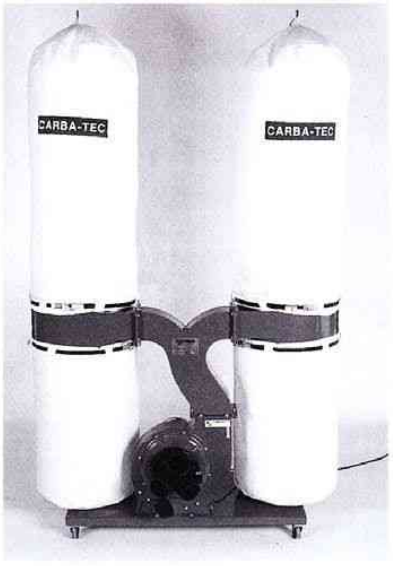
The mere presence of a dust extractor in your workshop will not guarantee safety. It is of primary importance to buy a system rated high enough for your needs. Then the design and efficiency of bags, ducting and fittings will determine if your extractor can operate at, or near its potential. When in doubt, it is better to have a system rated higher rather than lower. Be careful of the dealer who advises you according to how much you are prepared to spend and not according to your workshop requirements. As with all equipment it is best to buy something to last the long haul rather than a temporary stopgap.

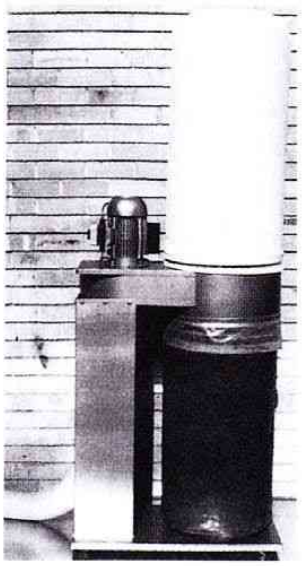
Suppliers

Dustmaster, Woodman

Robert and Alan Gregory sell machinery via their retail outlet which carries the family name and is also part of the nationally linked 'Woodman Group'. Dust collection is one of their passions and they claim their new cyclone system is nothing short of revolutionary. Cyclone systems are highly recommended for medium to large workshops and factories.

A standard system has a materials handling fan, through which air is sucked





Left: The Carba-Tec CT-4043 is rated at 1900cfm.

Centre: Filtrair's standard unit is available as 1120 or 1560cfm.

Right: The Hafco DC-8 from Hare & Forbes offers 2000cfm.

in and then pushed around inside a cyclone-shaped cylinder. Airborne material centrifugates inside the cylinder and slides down the walls into a drum or waste collection bin. As the waste drops, the air is pushed out of the top of the cyclone. Most airborne material leaves the extracted air, however 100% separation can never be achieved. The air that is expelled still carries very fine particles of dust—the ones most hazardous to health. For this reason it is recommended that dust systems of this type be installed outside the workshop—yet the problem of releasing fine dust into the atmosphere still exists.

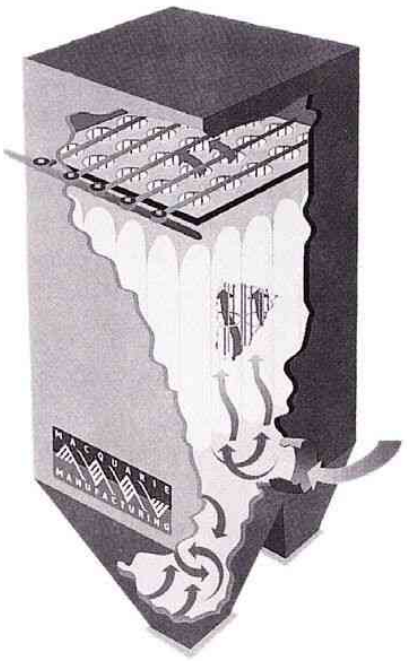
Gregory Machinery claims their new fully enclosed system achieves 97% separation and filters the remaining air particles down to 3 microns. This rating is far above specified health standards. A tighter, longer cyclone cylinder generates increased air speeds within. On most standard cyclone systems the motor pushes the air through from the side. Here a high efficiency fan on top creates a vacuum that sucks the material through. The very fine dust collects in a small tray at the bottom of the system. Two models are available, the *Dustmaster 3200*, which comes with cartridge filters, sells for around $5,200 and is suitable for two to six machines, although more machines can be connected using gate valves. The *Dustmaster 2500* sells for around $4,500. Gregory Machinery also stock a full range of smaller machines and accessories for all size workshops and their own brand of pleated cartridge filters which fit almost all bag types on the market. Gregory Machinery: (07) 3844 4433. Other Woodman stores can be contacted on (03) 9885 6104, (02) 9708 3233, (08) 346 4561, (09) 272 3844.

Filtrair

Filtrair Australia manufacture a large range of dust extractors, fittings and filter bags for the hobbyist through to large wood industry manufacturers. Designed and manufactured solely in Australia, all equipment carries a two year warranty on workmanship and parts, including the electric motor. Prices range from $600 to $1900 for systems with ratings of 675cfm to 4,650cfm which have been designed to operate from one up to eight machines (subject to location). Motor ratings are available from 0.55kw to 4kw and inlet sizes from 125mm to 305mm diameter. Filtrair: (02) 644 8812, fax (02) 644 8471

Macquarie Systems

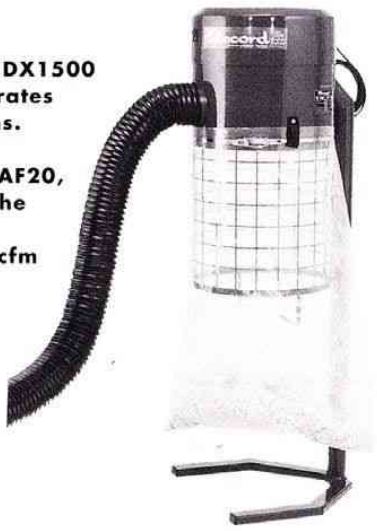
Macquarie Manufacturing is an Australian owned company, with one of its divisions specialising in dust and fume control for all types of industries including timber product manufacturers and associated processes. They offer a total package, designed to suit each different and varying application. The equipment is designed and built with this in mind and utilises 100% Australian materials. Macquarie systems include *Reverse 'Jet' Pulse* dust collectors—both bag and cartridge styles which incorporate the latest technology in cleaning systems, primary interceptors, up-draught systems and high efficiency cyclones. Macquarie also manufacture their own range of spirally wound ducting systems. In addition to dust collectors they are also the national distributor of *Plymovent Dust and Fume Collectors* used for adhesive plastic moulding and welding fume applications. Macquarie Manufacturing: (049) 75 3711, fax (049) 75 3486 or (02) 9773 7800, fax (02) 9773 7133



Macquarie's cyclone system

Carba-Tec

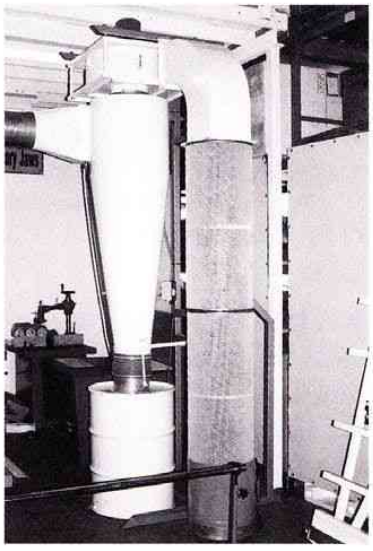
Carba-Tec sell three models of dust extractors which range up in size from the *CT 2041S* model which gives 650cfm via a 1hp motor. This extractor handles one machine at a time through a 4"



Left: The Record DX1500 offers filtration rates up to 0.5 microns.

Centre: Felder's AF20, shown here on the rolling carriage, is rated at 1700cfm and uses a cartridge filter.

Right: A Woodman fully-enclosed cyclone system.



inlet and sells for a very reasonable $295. The *CT-2042* has a 2hp motor, offers 1200cfm and has a double 4" inlet. Top of the range is the *CT-4043* with a 3hp motor, triple 4" inlet and 1900cfm. Filter bags for all three models are made from polyester. Carba-Tec also sell a complete range of extractor fittings and accessories. Carba-Tec 1800-658 111

Hafco

Hare & Forbes carry the *Hafco* range of dust collection systems which include the *DC-3* 3/4hp, 500cfm system, the *DC-4* which has a 1hp motor and 700cfm and the *DC-6* with 2hp and 1200cfm. Two metres of 100mm hose is included in the price with these three models. Hafco's *DC-8* gives 2000 cfm using a dual bag system which is powered by a 3hp motor. Hare & Forbes (02) 9633 4099 or (07) 3849 1888

Felder AF20

Felder Machinery sell the *AF20* systems which are 3hp and come with paper cartridge dust filters and are wall mounted. Both models are 3hp, the single phase model is $1,995, whilst the three phase unit comes in at $1,695. Replacement filter cartridges are $173 each. The *AF20* is rated at 1700cfm, options include a rolling carriage and polyester cartridge filters. Felder Machinery: (03) 9800 1706

Record

Record Hand & Power Tools are bringing in a new updated range of dust extractors; the *DX750* with .75hp sells for around $569, the *DX1500* at 1.3hp sells at $630, the *DX2000* with 1.3hp, the *DX3000* with 1.3hp and the *DX4000* with 2.6hp. Whilst the *DX750* features a needle felt filter the other models use cartridge type filters and claim to offer a dust filtration rate of up to 0.5 of a micron, which is excellent. Call Record Hand & Power Tools on (02) 9748 6800.

MacDonnell Road Hardware

Macdonnell Road Hardware in Qld also stock a varied range of dust extractors and are running specials for September and October, call (07) 3283 1558.

Industrial Design Embraces Australian Hardwoods

Hardwoods such as red gum and Victorian ash with all their natural markings are currently being elevated from structural timber status to the world of industrial design.

Above: Cabinets in the Visma range have arched bases and are made from solid Victorian ash with aluminium and glass details.

Mette Mäntynen's *Design by Mette* recently launched fifteen new furniture and lighting designs which combine Australian timbers with steel, aluminium, glass, leather and fabric.

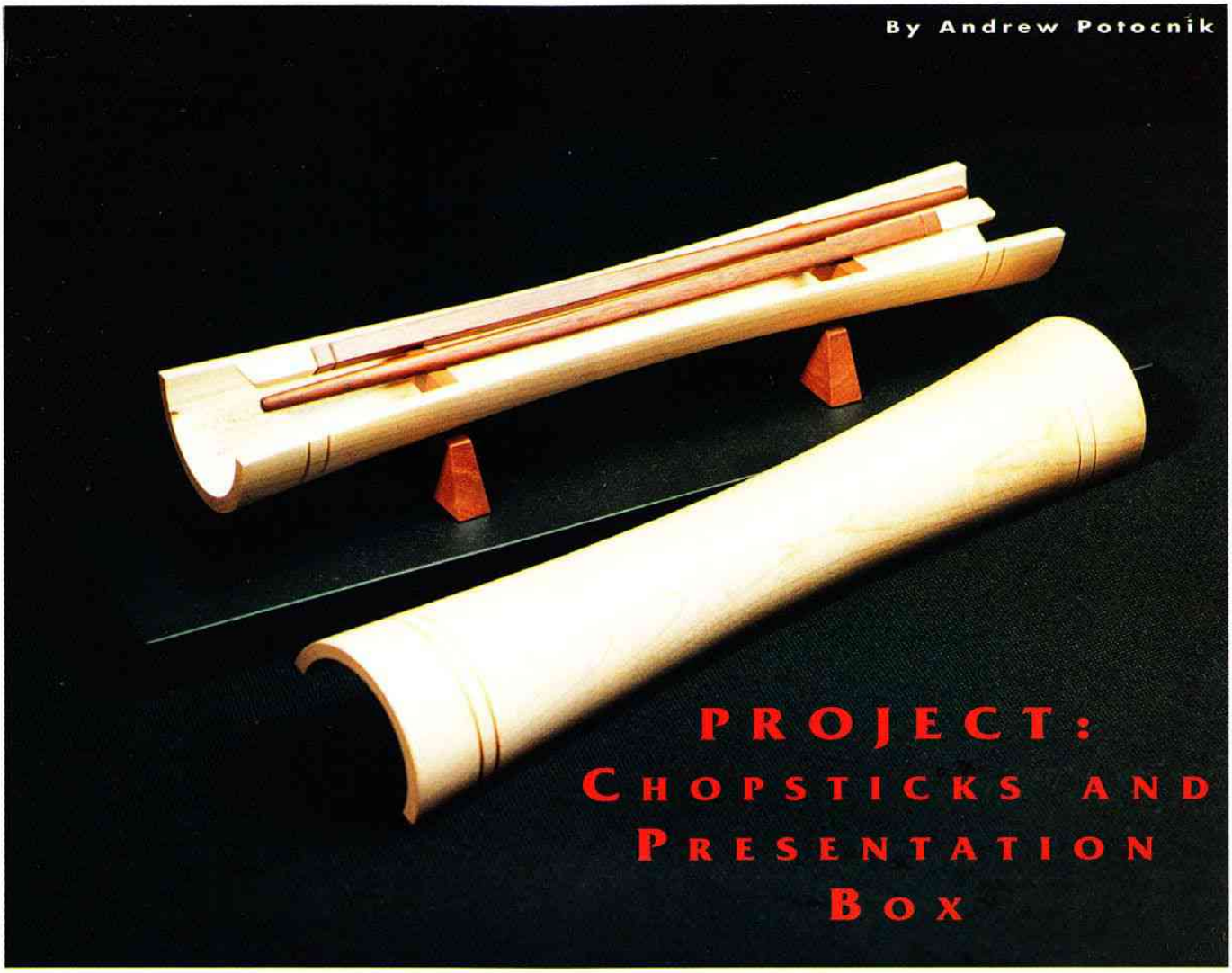
The transposition of timbers and metal is a familiar Scandinavian theme in furniture design (especially Finnish), however, rarely, if ever have Australian hardwood timbers been used in such designs. 'The lighter colours of European furniture have often been favoured in the past but it is time Australian timbers are shown off rather than being just structural timbers', said Mette.

'The product ranges have Nordic names because I wanted to instill some of my own soul into my work,' said Mette who hails from Denmark but has been Australian based for the past ten years. For instance, Mette has named her chaise lounge range, *Sibilia* after the cow in Valhalla who, as a good luck mascot, in Scandinavian mythology, led the armies into war roaring instead of mooing to confuse the enemy!

Identified by the Victorian Timber Promotion Council as a way of promoting hardwood timbers as designer features, the TPC lent support in the launch of Mette's product range designs at the Detail Contemporary Furniture Gallery in North Melbourne.

The TPC have advised Mette on Australian timbers and mills to contact for all her design needs. With her red gum coming from a Benalla mill and Victorian Ash from Gould's Mt Beauty mill, the northern Victorian mills look set to benefit from any manufacturing proposal that may result from the launch. Enquiries or copies of the catalogue are available on phone and fax number 03 9380 9164.

By Dinah Hall



By Andrew Potocnik

PROJECT: CHOPSTICKS AND PRESENTATION BOX

In my opinion, the simplest box that nature ever created is a neatly jointed cylinder of bamboo. This shape inspired me to turn an elongated form that could both enclose and present an object. I chose to make my box for chopsticks, and the making of both is designed here.

CHOPSTICKS

Select a timber that doesn't have any significant toxic properties. I used red gum which was free of figure and unusual grain. Experience has taught me that it is very difficult to turn long thin pieces if the grain isn't clear and straight. Remember to cut your timber a little oversize so that you can plane it to size later on. Only the handle will remain square, and this needs to be planed neatly, free of saw marks and tears.

Alternative ways of dressing your timber are with a disc sander, belt sander or linisher. If you don't have a sander, you can easily make a disc and table that can be fitted to a lathe, assuming that you have one of those! (Photo 1)

If all has gone according to plan, you should soon have two pieces of wood about 7 x 7 x 250mm long that are ready to shape. These measurements can be altered to suit. To shape the round tapered section of each stick, you may wish to turn it (as I did), or to plane, sand, spokeshave or file it.

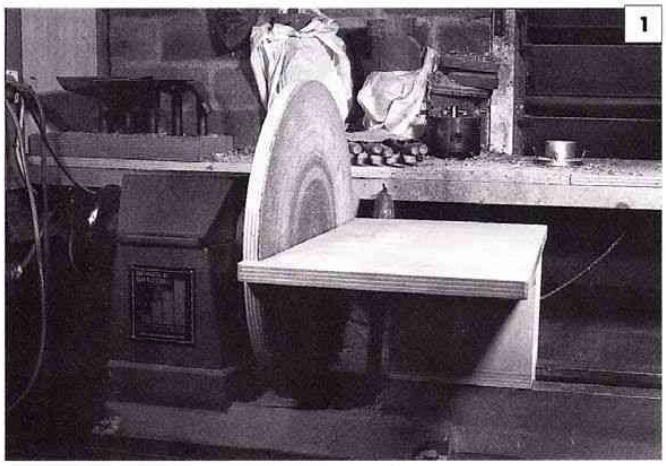
When turning, it is possible to hold the wood between centres, but be sure not to over-tighten your quill, or the wood will bow.

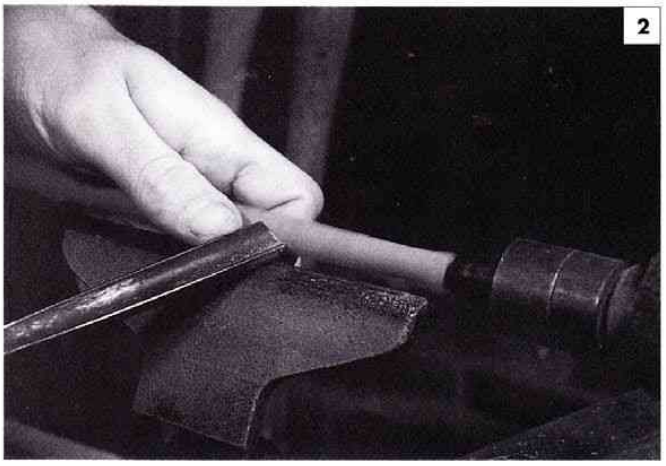
Support the wood while turning as it is quite flexible (photo 2). To do this, rest your forearm on the headstock, curl your fingers under the work resting them on the underneath part of the toolrest, and gently press the middle part of your fingers against the spinning wood. Be sure to use very sharp tools and cut gently, the wood is flexible and prone to breakage.

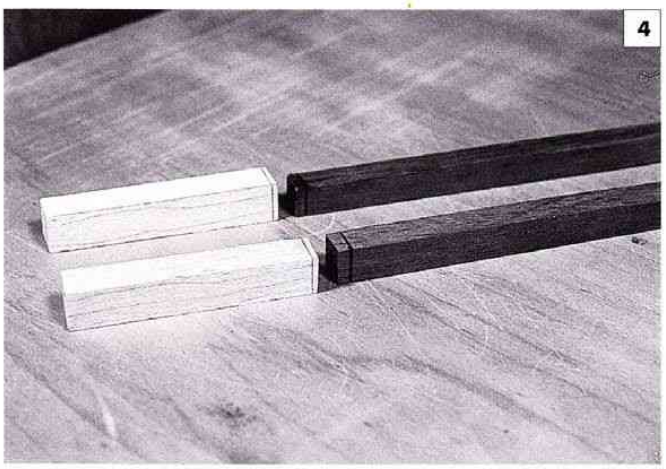
If you're planing or filing your chopsticks, mark out sections where the taper will start, then clamp the wood to a supporting block held in a vice. Plane or file one corner at a time, gradually working down to a circular taper. If planing, hold your plane on an angle to the wood so that the blade slices the fibres to leave a smooth surface (photo 3).

If you're thinking of mass producing chopsticks, then you may wish to do all the shaping on a disc sander, but be realistic if you hope to sell them. I recently paid $1.20 for a packet of twenty at a Chinese grocery store. You could find yourself working for a couple of cents per hour!

Once the two sticks were completed, I felt that it would be nice to add contrasting timber to the end of each stick to add a little interest. For this I chose rock maple, the same timber I







used for the box.

Photo 4 shows square lines marked on the parts of each piece of wood that would be joined. I sanded these surfaces square and flat using the disc sander. The rock maple pieces were left about 1mm wider and thicker than required for easy trimming to size.

You can use a dowel to join the stick and the end, or (as there isn't a lot of stress on this joint) simply glue the two pieces together. I used a long lasting, water resistant glue ('Araldite' two part epoxy resin). After gluing, clamp the two pieces and set aside to dry.

Next, plane the rock maple to the same size as the red gum. I used a simple planing block to hold the wood so that I could work freely. You could also use a disc sander or a sanding board for this. (To make a sanding board, simply attach a sheet of abrasive paper to a flat board using staples or glue. This board enables you to sand objects flat and smooth, and when clamped to the bench, frees both hands. Sand each of the sides through to their finished state (320 grit or higher), sanding with the grain to minimise scratches. Next, cut the eating end of the chopsticks off straight. I used a very fine-toothed fret saw in order to reduce chipping of fibres. To create a slightly different appearance on the maple ends, I cut each end diagonally to create a diamond shape when viewed end-on.

Sand the ends prior to finishing. Cooking oil is the most appropriate finish in this case, but be careful to select one that doesn't become rancid. Canola oil is suitable, so wipe it on liberally, allow it to soak in, then wipe off the excess and leave to dry (photo 5).

Presentation Box

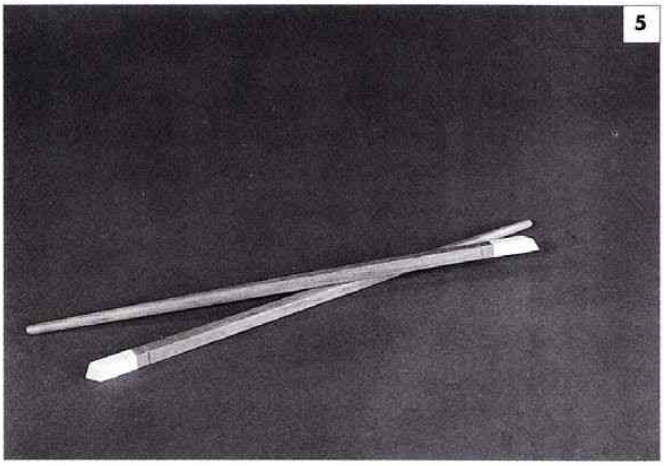
Cut a suitable piece (300 x 50 x 50) of rock maple in half lengthwise, plane the two cut surfaces flat and PVA them back together with a sheet of paper in between (photo 6). Laminating the paper in allows you to separate the two halves for the top and a bottom of the box. Rather than trying to cut the sleeve in half later, it is much easier to split the paper joint. The separated surfaces require only minimal cleaning and the result is a fully round cylinder, not two near halves.

Take care to plane the surfaces as flat as possible, otherwise if you have gaps, the wood can de-laminate while turning. Obviously this could be extremely dangerous, not to mention frustrating if you need to start again.

Before beginning on my rock maple, I turned a test piece from a scrap of radiata pine to see if my intended form and dimensions were correct. This also helped to predict any problems that might arise.

When mounting the block between centres, line up the lathe's centres with the glue line in your timber to guarantee two perfect halves.

Rough turn your block into a cylinder, then turn each end down to 60mm diameter. I used vernier callipers to measure the diameters. In photo 7 the glue joint is visible at 'eleven o'clock'.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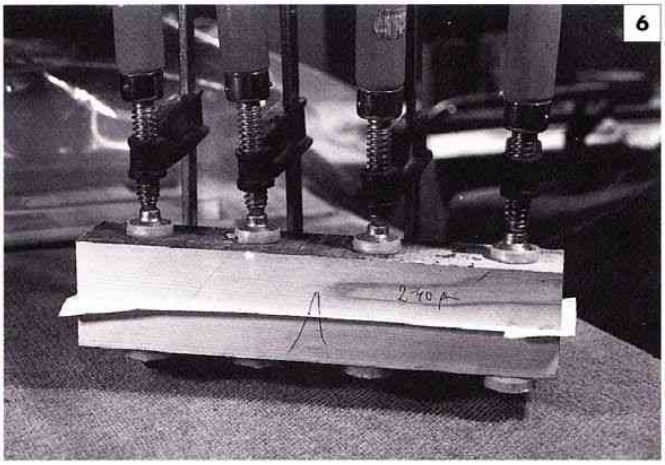
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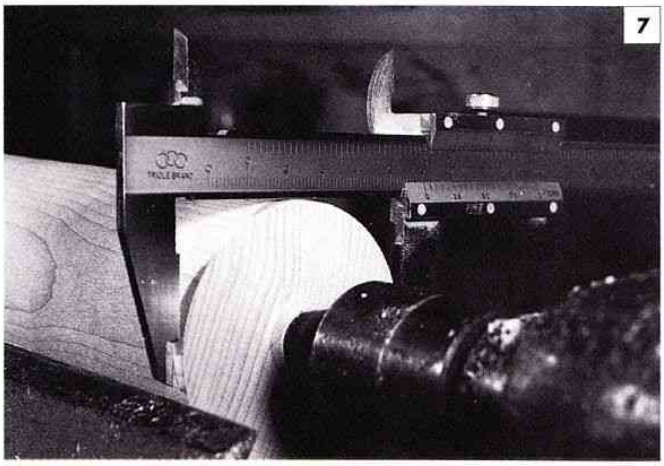
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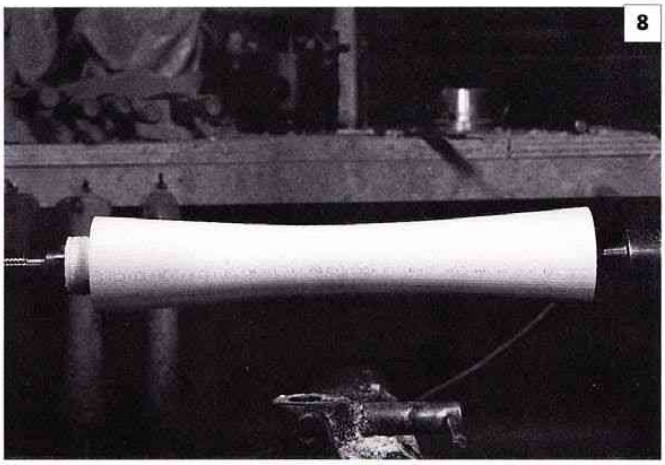
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Turn the cylinder to shape, retaining the 60mm ends and working down to 43mm diameter at the thinnest point halfway along (photo 8). Remove the bulk of material with a roughing gouge, then use a scraper to refine the form. Check the form by eye to see that the left and right halves are even, or use a profile gauge.

Once the form is perfect, sand through 120, 240, 320 and 400 grit abrasives. Finish off by hand sanding with the grain. Don't over-sand or you'll lose definition of form.

Next, mount the wood in some form of holding device, so that one end is left free, enabling you to hollow out the inside of the box. I made a carrier from scrap timber and screwed it to the faceplate. Into this I cut a hole or rebate identical to the diameter of the rock maple and about 6-7mm deep. Note in photo 9 the extra hole in the centre has been cut to accommodate the stub left at one end of the wood which will be needed later.

Glue the rock maple with PVA into the carrier, push the centre of the tailstock back to where it was when you were turning the outside. Tighten it to hold the wood centred and clamped at the same time (photo 10) and leave to dry overnight. The wood should run true once the tailstock is removed.

Once dry, fit a Jacob's-type chuck to the tailstock, insert the largest diameter drill bit you have and drill as far into the blank as possible, preferably more than halfway so that the other end can be drilled out later. I used a spade bit as it cuts quickly and easily.

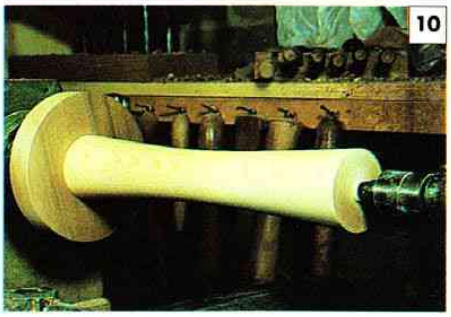
Once drilled, the hole can be enlarged and shaped to correspond to the outside form. One way of removing waste from the inside is to insert a scraper about 10mm into the hole and scrape towards you along the grain. Scraping into end grain requires a lot more pressure. Experiment with different scrapers and techniques to see which suits your style and level of ability.

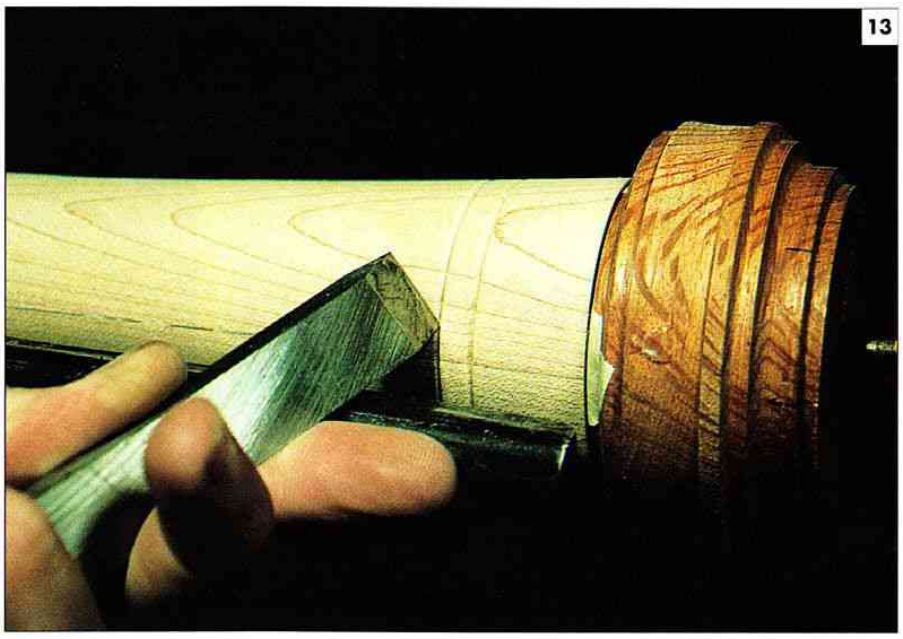
An alternative way of clearing the waste is to use a small gouge and carefully work your way into the end grain of the wood. At the centre the gouge is rolled over and used to cut upside down, coming out on the reverse side. Remember to practise new techniques first.

Once I got to the stage of hollowing out deep into the cylinder, I changed over to a Stewart System shear scraper (photo 11), which I found ideal. Use callipers to check for even wall thickness (photo 12).

I used a piece of dowelling wrapped with abrasive paper (attached with masking tape) to sand the inside. When sanding, support the cylinder with your other hand to counter any pressure. Be very careful when inserting the sanding rod into the cylinder as it is very easy to lose control and hurt yourself.

Reverse the cylinder and repeat the full process. Before removing the cylinder from its carrier, I cut two decorative V-grooves at each end with the long point of the skew. To support the wood, I first turned a plug out of some scrap timber, then held it in place with the tailstock (photo 13). This needs to be





done after sanding has been completed so the line stays sharp.

Split the completed cylinder in half along the paper line (photo 14) by gently easing a sharp knife into the paper and slowly pushing it along, separating the paper as you go. Scrape the separated surfaces clean. Sand the two surfaces flat and smooth using a sanding board, again working through various grades of abrasive. Any visible cross grain scratches on the inside will now need to be removed by hand sanding along the grain.

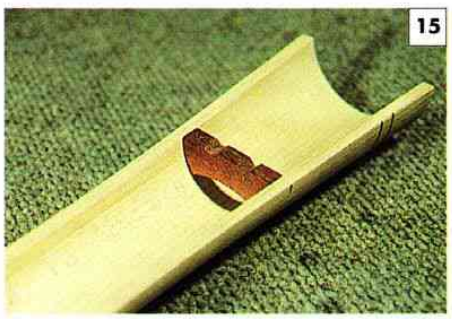
The red gum supports were measured, cut, shaped and glued into position (photo 15). Shaping to final form was done on the disc sander by constant testing. Notches were cut and filed to position the chopsticks. Once complete, the supports were glued into position, after pre-finishing with polyurethane.

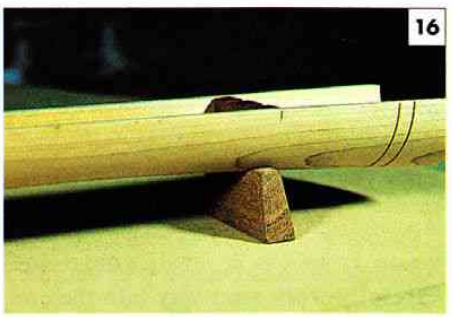
The stands (photo 16) were also made of red gum which was cut and shaped in the same way as the supports, then sanded through to 400 grit and finished. To sand and shape the concave surfaces I used a simple home-made device similar to a drum sander which is held between centres on the lathe.

Before attaching the stand to the box, I carefully marked where the four locating pins which hold the lid in place would go. These pins, or tiny spikes protrude from the surface of the lid and fit into corresponding holes in the lower half of the box. The spikes, turned in a Jacob's chuck, were 3mm long, 2mm diameter and had a 1.5mm tenon which fitted into holes that were drilled into the lid.

Once the spikes were completed and glued into position (photo 17) an oil-based satin polyurethane was liberally with a cloth and allowed to soak in for a few minutes. All the excess was wiped off with a dry cloth to leave a smooth surface. Finally, the supports were glued on and the finished product assembled.

Note: Andrew Potocnik won first prize for woodturning with this piece at the Warburton Winterfest in Victoria in July this year.





RESTORING FURNITURE PART III: DISTRESSING

Age Causes Distress

It seems odd to speak of furniture being distressed—the maker, yes and sometimes the customer, but not an inaminate object like a table! The technique of subjecting furniture to stress and abuse has, however, several purposes. Firstly, 'distressing furniture' is about simulating the signs of wear and tear. In a prized piece of furniture or an antique, decades of real wear and tear, along with the polishing and mellowing of the timber itself, creates 'patina'. Furniture makers have been making copies and reproductions for centuries, and many of these are now antiques and pieces of note in themselves.

Secondly, when restoring furniture it is sometimes necessary to match surface colouring and markings to camouflage a repair. For the purposes of this article, the subject of distressing deals then with matching in repairs or giving an 'old' or rustic look to a reproduction piece. For the most part 'distressing' simply constitutes a technique of finishing like any other.

Equipment

The arsenal of the furniture distresser could be confused with that of the Marquis de Sade: chains, pots of acid, glowing cigarette butts and embers, augurs and drills, broken glass, tar, dirt and grime. Whilst distressing furniture is all about deception and illusion, any good torturer knows a bit of restraint can achieve more than out and out brute attack, which could very likely finish the victim off completely. So do not assume your customer is a fool who will not notice the cigarette burns and bicycle chain welts are a little too evenly spaced. Overdo it and you will be left with a pathetic and tasteless piece of furniture which would have been far more acceptable left the way it was.

The idea with distressing is to 'age' your piece of furniture artificially. In order to imitate natural wear and tear begin by imagining where this would normally occur and what it might look like. Look at antiques or well used pieces of furniture. You will probably see that flat surfaces suffer all kinds of indignities, while legs and rails tend to get kicked, scuffed and dented. Edges will often be nicked and worn. Depending on the item one spot may be more worn than others.

The underside or inside of your piece will not show the same kinds of abuse, however the timber itself may be more mellow in colour. Very often old furniture has its own smell—a coat of spirits can be applied to give a 'mellow' odour. I have heard brandy works wonders too! *Always experiment on scrap timber and then progress to a piece of old or cheap furniture to see what effects you can come up with.*

Common and Far-Fetched Methods

Here are some common and intriguing methods which are listed here as much for your amusement as instruction:

- Up-end your furniture on a gravel path or rocky earth. Grind it in to achieve marks and breaks in the timber surface. Exposed endgrain will be stained by the dirt or gravel.
- 'Pick up the nearest tool and belt it' said a furniture restorer who does not wish to be named. The bike chain effect really is used by some, and is known in the trade as 'thrashing'. It should be used sparingly— the marks produced are easily recognised.
- A nail can be used to scratch, or apply repetitive dot-dot-dot markings.

David Hancock, master polisher, prepares to 'distress'.

Once again be judicious and apply random, seemingly accidental marks. You can put some acid on the nail if you want to be creative.

• Table corners and feet may warrant special attention: dent and mark accordingly.

• A blast of fine shot from a 410 shotgun (at a distance) does the trick for some. The aim here is to imitate borer holes. *We don't recommend you start shooting in the workshop!*

• Various stains can be dribbled, spilt, dropped, brushed or flicked on. One exponent dips a bristle brush in stain or tar (try orange colours for 'age spots') and flicks carefully with the thumb and finger for a fine effect.

• Add colour to your gravel- or metal-made markings by applying beeswax mixed with boot polish. Boot polish, applied to carvings, left to dry and then polished off simulates the darkening that can occur in crevices over time.

• Tea leaves also stain well. Hurl a pot of tea at your piece (hold onto the pot, unless you want to mark and stain at the same time). The tannin in tea naturally occurs in some timbers and so produces a sympathetic stain. Coffee also stains well, though this is more popular with those who specialise in the 'authentication' of books. Diluted roof sealant was once a popular (and cheap) stain to use for a 'Baltic pine' effect. Commercial stains, diluted and mixed as desired also work well.

• Burying or soaking the piece or part thereof can achieve effects, though don't expect petrification to occur overnight! You could experiment with timber samples to see what happens. In fact submerging timber in water and earth was once commonly practised as a method of timber seasoning.

• One well-known furniture maker (name withheld) takes his masterpieces home and uses them for a while in his kitchen as chopping boards to achieve realistic cuts and lines.

• If your furniture has brass or metal fittings spare a thought to ageing them as well. Shiny brass and steel will not match that carefully worn and speckled patina you have achieved.

• Put your table out in the sun and let it warp—if you're lucky the joints may open up as well. Sand and finish for a naturally warped and twisted look.

• For a really old look you can intentionally damage your piece, then fix it. Try placing a patch in a table top or 'fixing' a rail or leg. Knock a corner off your piece and then replace it as best you can.

• You can imitate borer holes with an awl. It is interesting to note that one way of spotting fake 'antiques' is to check whether borer holes have flat ends.

• Blowtorching, sandblasting and acid baths are more options—do take it easy, you could end up with a lot less than you started with.

As you can see, the sky's the limit, you can really be creative with this kind of 'aged' finish. If you are after authenticity, however, the more research you can do into what real old furniture looks like, the better you will be able to imitate it. Remember, restraint, discretion, subtly and spontaneity are the hallmark of a good 'distresser'.

Pre-Aged Materials

Another common way of making 'aged' furniture or achieving a weathered look is to use recycled timber. In the eighties especially, many a backyard and larger manufacturer joined the race to buy house lots of Baltic pine flooring from old houses and demolition yards. Other timber sections such as posts, beams, palings and linings have been successfully used to get a time-worn look. The use of recycled timbers, whether for a rustic or a contemporary look, is of course environmentally commendable. After all, the timber is still good and often very stable after years of air drying. Character marks are a bonus for some.

The big drawback with the use of recycled timbers, of course, is the wear and tear which they cause to machinery and tooling. Knots in old floorboards can be exceptionally hard on your planer blades, whilst fragments of nails and staples are very hard to completely remove prior to machining. You can put up with it, keep a separate set of saw and planer blades or concentrate your efforts on distressing new timber.

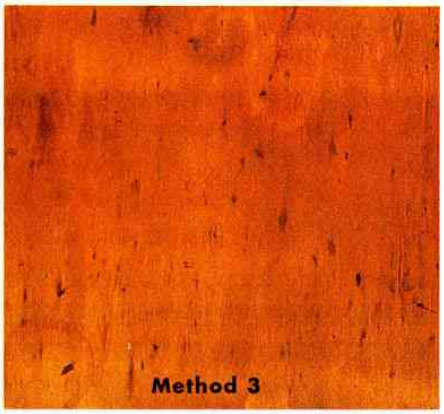
Natural Distress

Instead of baulking at gum vein, pin holes and other evidence of the effects of natural phenomena, we can, in some cases, learn to appreciate it. And it does sound like good sense after all, to utilise the character markings of natural distress rather than, or in addition to, the artificial kind we have here described.

Overleaf are three methods of achieving an aged finish which are given in order of ease of application.

By Vince Harraghy

THREE WAYS TO 'DISTRESS'



Distressing involves three phases, ageing the timber, colouring and highlighting and lastly, applying a finish to protect and beautify the wood.

How To Age Furniture

To age the timber (by adding cuts, bruises, nicks, marks and stains) gather up as many odd shaped metal or wooden objects as you can fit into a sock, sack or pillow case. Firmly knock, flog or drop the bag of goodies all over the wood. Use a dull blade, strong wire or similar to make a few holes and scratches. Scuff sharp edges with a wire brush. Add as many effects as you like, for instance dab some paint or nail polish into holes and grooves, before it hardens scrub lightly with a dry toothbrush, or add 'character' spots by dipping the toothbrush into ink or tyre black and flicking the bristles over the timber. Rusty implements, when soaked and left to dry on tops, leave intriguing stains, as do black tea or coffee spills.

Here are three ways of colouring and finishing an 'aged' surface which rank in order of ease.

Method 1

Use a kitchen scouring pad to clean the timber. Distress the timber, but don't go too far, you can always add more effects later. Mix together thoroughly some dark boot polish and wax such as beeswax, Dubbin or floor wax. Use the scouring pad again to spread this mixture over small areas of the timber. Follow the grain and rub in well.

When the polish begins to dull off, remove excess with a soft rag. Allow to dry overnight, then apply a liberal coat of clear wax and buff hard using lots of elbow grease. Follow up applications will enhance the beauty of your 'creation'.

Method 2

Requirements:

1 sheet of 180 grit sandpaper or #2 glasspaper

2 pads of 000 steel wool

1 sachet of wood dye (water-based 'Scan Stain' is excellent)

250ml shellac

1 good quality paintbrush (for shellac)

1 small cheap staining brush

1 tin dark paste wax or wood oil (Jacpol, Liberon, tung or linseed oil)

The whole lot should cost around $20 and is available at your local hardware store.

1 Sand timber to ensure consistent absorption of stain.

2 Distress the furniture using your collection of oddments and effects.

3 Dissolve the wood dye to produce a weak colour, apply wet with a brush or rag onto the wood, dry off with a soft rag.

4 Sand the timber lightly while it is still moist to create a textured surface and to highlight knocks and scratches.

5 The water stain will also cause the grain to swell creating welts and scars.

6 Allow to dry overnight.

7 Lightly scuff timber with 000 steel wool, dust off well and brush on a thin coat of shellac.

8 After 5 to 10 minutes drying time smooth down with 000 steel wool and dust off.

9 Apply liberal coatings of dark paste wax as described.

Method 3

This method is most suited to production line applications and is based on use of a solvent based stain for effect. Wattyl 482 walnut spraystain reduced by 80% produces a classic Baltic pine look.

Ensure timber is clean and smooth before 'flogging' or distressing. Seal with pre-catalysed lacquer, cut back with P240 paper.

For highlights mix walnut pigment stain with black stain, thin with turps, spray on wet and rub off thoroughly, leave residue in corners, crevices and joins.

Use heat lamps or a blower to force dry thoroughly before topcoating, otherwise wait at least four hours or lacquer may crack. Final wax and smooth using Mirotone Sprayglow polish and 0000 steelwool.

Vince Harraghy lectures in polishing at Holmesglen Inst. of TAFE, Victoria.

PRODUCT REVIEWS

ASHBY LOW-ANGLE BLOCK PLANE

The inspiration for this tool is the legendary Norris plane. With that as his guide, Phil Ashby, a long time Adelaide-based woodworker, has set out to make a plane which has, as he puts it, 'the excellence of old'.

In recognition of the demands of the modern market, he has also decided to supply his plane in ready-to-use condition. Unfortunately, since all the necessary fettling is time consuming hand work, this must add considerably to the cost. This might not matter to a large section of his potential market, but as we are all painfully aware, woodworking is not a lucrative profession, so I would like to suggest that the plane be offered in 'unfettled' condition for those with the time and skill to do it themselves. Hopefully this will make it available at a more affordable price than the current $650.

Weighing in at 1.2kg the plane certainly has the heft of the Norris. The sole measures 162mm x 62mm which is large for a block plane. The blade is a magnificent piece of precision ground high carbon tool steel, 50mm wide and a full 6.25mm (or 1/4") thick. It is hardened to 62° Rockwell. The blade adjustment mechanism is based on the single thread Norris style. The model tested had 26tpi, but the next series will have 42tpi for finer adjustment and less backlash.

The body is cast from Admiralty Gun metal with a higher tin content for extra hardness. Wood infills and decorative details are made from a variety of Australian inland timbers, such as lancewood, ooline, yarran, western myall, gidgee and mulga.

In reviewing a new and complex product such as this I think it is very important that we remember, as anyone who has ever designed anything knows, that it is incredibly unlikely that you get everything right first go.

With that in mind, I would offer the following comments, most of which are minor matters. First of all, I would beef up the adjuster shaft a bit. As it is now, if you try to laterally adjust the blade without easing off the lever cap screw, you could easily bend the shaft. I would also look to make both screw threads tighter fits. They both seem to be a bit sloppy when not under any pressure.

I think the choice of a small dimple as a decorative detail in the bottom of the front bun inlay is an unfortunate one, as it spoils what is a perfect and logical finger hold when using the plane with one hand. The plane body has been beautifully scraped and lapped, and while the sole is lovely and flat, the sides are not quite square to it.

The throat of the plane is about 2mm wide with the blade in cutting position, which to me is unnecessarily large. I would like to see it at least half that, or less. As I said, most of these points are relatively minor, and easily fixed.

A more difficult question is the overall size of the plane. For many it will be too large and too heavy to use with one hand. Many woodworkers I know prefer the Stanley 60 1/2 to the Record because of the smaller style of the Stanley, but both of these are considerably smaller than the Ashby.

Furthermore, with its 50mm wide blade, if you use this Ashby plane on tough wood, it takes a lot of muscle to push it, and there is no obvious and convenient way to hold it at the back.

I think it would be greatly improved if the lever cap was extended along the lines of the standard block planes to provide a rest for the heel of the pushing hand. This would also keep this hand clear of the blade adjustment knob.

Having said all of that, the plane passes the ultimate test with flying colours: it works beautifully. In this regard, its size and particularly its mass, show their positive side. Where the much lighter Stanley bounces and chatters its way across end grain jarrah, the Ashby gave a smooth, flat surface. Freshly sharpened, and in long grain, it gave the best shaving I've ever succeeded in getting from a plane.

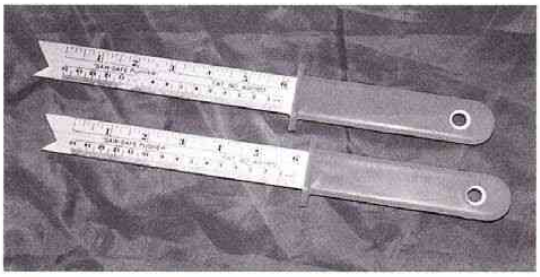
The blade depth adjustment works smoothly and easily, even with the lever cap fully tightened—again in marked contrast to my Stanley. The plane is beautifully finished, with excellent detailing. I particularly liked the attention given to the hand filed chamfer along the cast body sides.

Ashby offers a lifetime guarantee and plans to keep a complete spare parts backup along with a resharpening service. The plane comes in a wooden box with a certificate recording its serial number and type, and names of the woods used for the infill and decorative details.

As one who has for years suffered the poor quality machining and finish of a traditional block plane, as well as the butter like toughness of its blade, I welcome the appearance of this plane. It is obviously a labour of love, and I am enough of a romantic to believe that such enterprises deserve to succeed.

Reviewed by Bob Howard

From: Woodworks Book & Tool Co (02) 9484 1183, M I K International (08) 333 2977

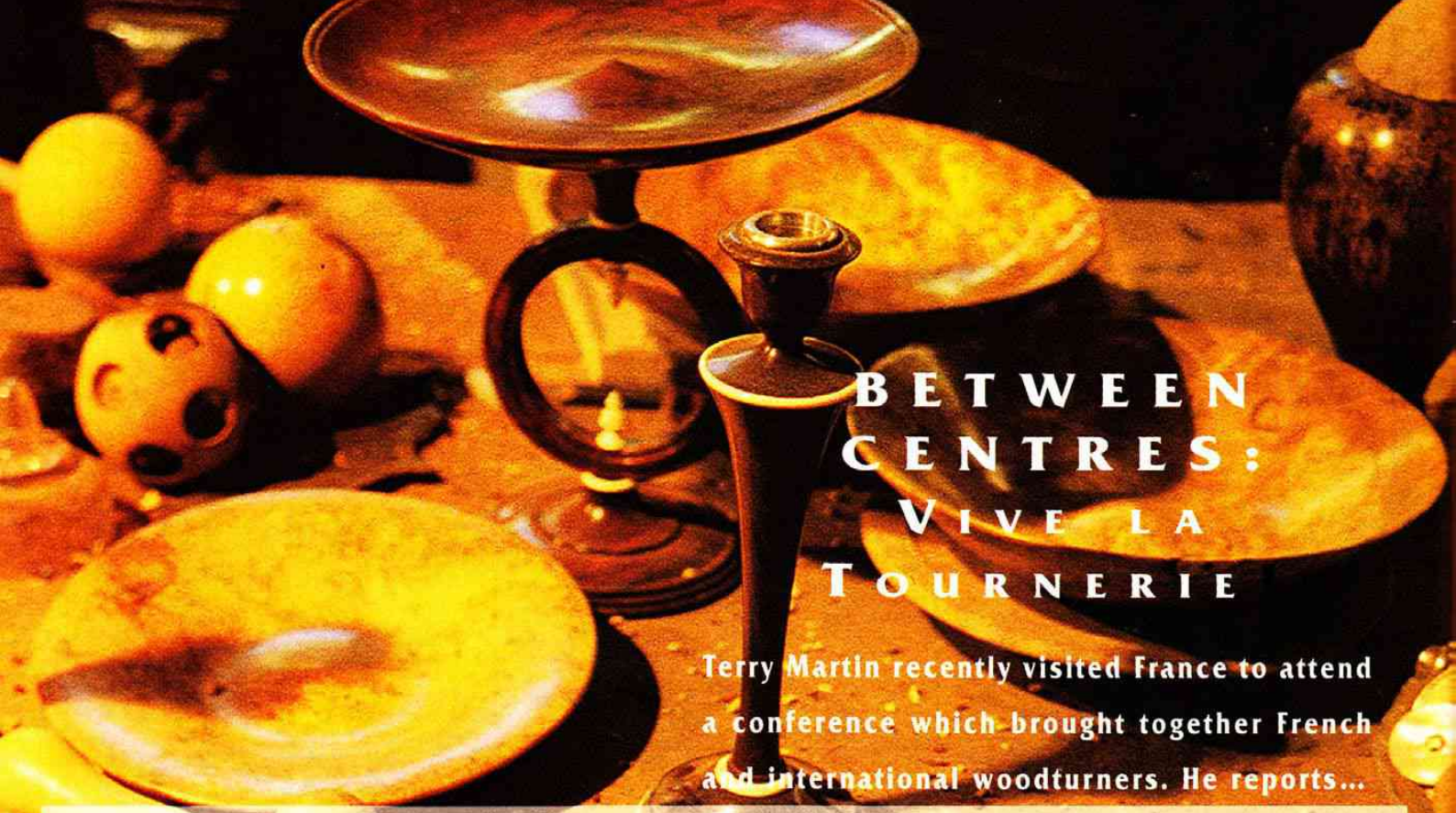


Saw-Safe Pushers

There's nothing wrong with using a piece of wood as a 'push-stick' for sawing and machining operations. Garrett Wade Australia has, however, sourced an American-made product which does the job considerably better. 'Saw-Safe Pushers' are plastic handled, aluminium bodied pushsticks which double as handy rulers with both metric and imperial measurements. The aluminium V-shaped pushers are safer than wood and won't damage the sawblade if they do come in contact by mistake. In pairs for $25 from Garrett Wade on 1800 33 77 36

Yanek's Finishes

Yanek's Finishing Products have been on the market for only eight months but they are the result of at least ten years development at the 'coalface' of Yanek Druyan's line of work which happens to be furniture restoration and polishing. One of the main ingredients of the oils and waxes in the range is eucalyptus gum resin. Around 24 other ingredients are used including beeswax, carnauba wax, paraffin resin, essential oils and very little turpentine. Available as yet only in NSW from Trend Timbers (045) 77 5277, Woodworks (02) 9484 1183, Stimsons (02) 9810 1007 or call Yanek (02) 9627 5100.



BETWEEN CENTRES: VIVE LA TOURNERIE

Terry Martin recently visited France to attend a conference which brought together French and international woodturners. He reports...

France is a country with a long and proud history of woodturning, but little of it is known outside France and it is quite difficult for an outsider to find out much about current practices. Until about ten years ago this was true of the turning traditions of most countries. English-speaking turners have however benefited from the recent flood of information in various publications.

The French themselves are very conscious that the revival has been dominated by English speakers and in 1995 they held the *Rencontres Europeennes de la Tournerie* to help rectify this lack of knowledge. The conference brought together the work of French turners for the first time in a large exhibition and provided a good chance to review the state of their craft.

Eleven French turners displayed forty four pieces whose range and quality varied; even so there was enough to gain some idea of trends. There was a rude, robust quality to much of the work with natural wood features being highly prized. There were also works of great precision with fine qualities reminiscent of the French ornamental turners of previous centuries.

Fabrice Micha produces such work and is adamant about his role. 'I am an artist. I am not like the turners who produce *that* kind of work', he said, with a disdainful glance towards some natural-edged pieces. He spent a lot of time at the conference in earnest discussion with the other participants, forcefully putting his view that the legitimacy of turning will come from his approach. Undoubtedly his work is highly regarded in France and it is featured in many French fashion and design magazines.

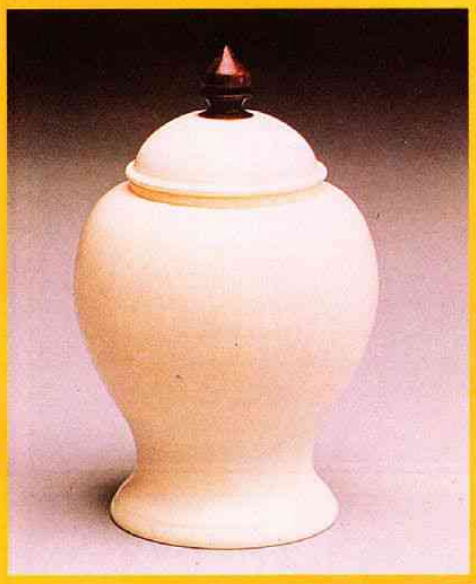
Working in a wonderful old building on the outskirts of Paris, he has a fascination with the detailed work of past eras. Chinese balls-within-balls, vases and oriental stupa shapes occur in much of his work. Whether this is a reflection of the earlier European passion for chinoiserie, or a more direct interest in Asian design is not clear. He often uses rare materials, such as ivory obtained from such sources as old billiard balls.

In strong contrast to Micha's work is the work of Christophe Nancey. Another energetic and idiosyncratic turner, I was surprised to learn that one of his favourite woods is jarrah burl. We discussed trading timbers and he proposed that I should send him burls and he would send olive, juniper, heather and others. I was very interested until he astonished me by saying he could send me 30 cubic metres! We are still negotiating on that.

Nancey's work almost always includes the natural faults of the timber. He frequently leaves a natural edge on his vessels, which make no concessions to functionality. One of his favourite techniques is to assemble different woods and pour molten pewter into the fissures. He turns and polishes the whole to produce what he calls his mosaic pieces. Nancey always strives for a dynamic quality to his work and is happy to take risks to get the results he wants.

One of the most entertaining turners at the conference was Alain Mailland. Beneath the jokes however was a serious approach to the art of turning. He calls his work *The Landscape Under the Bark* and describes it as a 'dream to reveal the beauty of the wood'. The dream is the turning time, the piece is the memory of the dream.

Often working on a large scale, Mailland produces work which is pointedly made from pieces of trees. The flaring of branches or the folding of roots are, wherever possible, incorporated



into his work. Like Nancey, he favours natural edges and clearly believes that his work is essentially an enhancement of the work of nature.

Another turner whose work contrasts with the naturalists is Jean Francois Escoulen. Trained as a traditional production turner in his father's workshop, he has applied his technical virtuosity to the making of extraordinary lidded boxes. These pieces are made by offsetting the work (or 'de-axising' as Escoulen puts it) while mounted in a chuck that he invented. The fine detail of their finials shows his mastery of spindle work, while their eccentricity speaks of his determination to take traditional turning down new paths. What is not immediately obvious is that the finials are often the only thing stopping the boxes from falling over. The care required to achieve this balance is another indication of Escoulen's skill as both a turner and designer. Escoulen says, 'this work interests me a great deal, because here is still so much research to be done, all the more because this delicate work is decentred'.

Escoulen has been a turner for 24 years and has spent much of that time producing traditional spindle work, such as table and chair legs. So it interesting that he has also ventured into making extraordinarily long and fragile spindles which deny their functional roots. He says 'in spite of evolving towards creative turning of a far more contemporary nature over these last eight years, I have very much kept in mind the spirit my ancestors have shown towards their craft'. Escoulen is also active in creating new networks for French turners to share skills and information. With another international conference being planned in France, it is not hard to predict that the French turners there will soon be as well known as they deserve to be.

Opposite: The workshop of Fabrice Micha.
Top left to right: Vase turned in grafted cherry incorporating three branches by Alain Mailland (35 cm high).
Boxes in various species by Escoulen. Average height of each is about 18cm.
Oriental style vase by Fabrice Micha.
Centre: Mosaic vase *In Vitro* by Christophe Nancey. Jarrah burl, box root and pewter (32 cm high).
Left: *Who Will Win*. Mailland (pictured) described this piece as a dream on an unknown planet.

Yours to win...

Sjöbergs Workbench, model 1552. Total length 1560mm, bench-top length 1430, width 660mm, working height 860mm, valued at $975. From Promac (07) 3279 4811.

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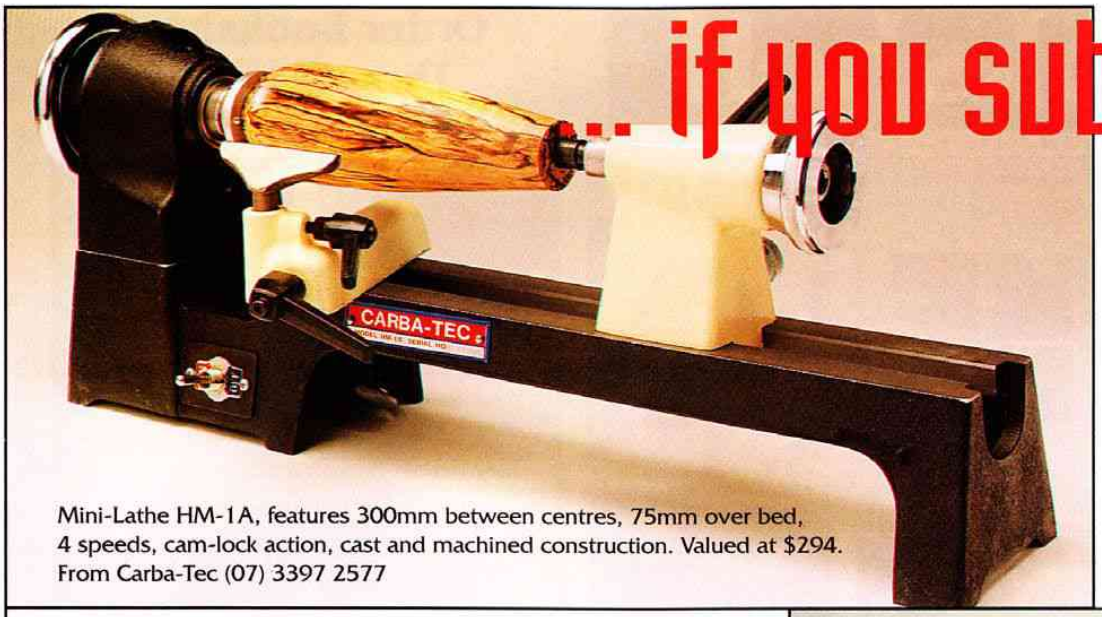

Mini-Lathe HM-1A, features 300mm between centres, 75mm over bed, 4 speeds, cam-lock action, cast and machined construction. Valued at $294. From Carba-Tec (07) 3397 2577

Freud high quality circular saw blade. Features 96 triple chip teeth, 300mm diameter, micro grain carbide, noise reduction laser etching and anti-kickback design. Valued at $200. From Woodman Group (02) 9708 3233

These Japanese Z-saws are a delight to use, one is a fine crosscut and the other is a super fine dovetail saw. Total value $98.

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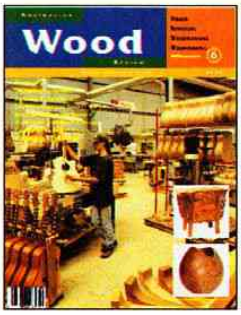
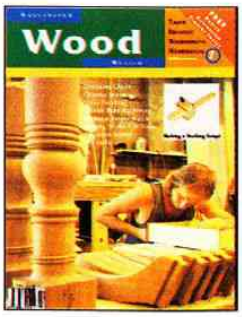


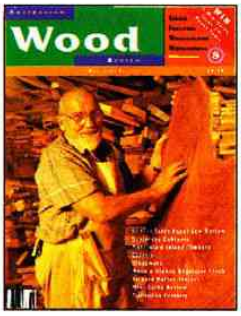
No. 6

Musical instrument making in Australia, timber veneer design , Chinese Furniture, laying a sunburst veneer match, computer design software reviewed, sanding and abrasives, bandsaws, winning at exhibitions, turning natural edged hollow forms, Maton Guitars.



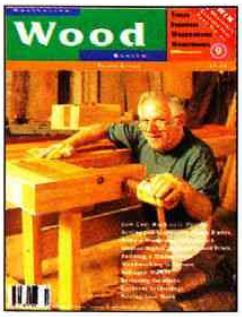
No. 7

Designing chairs, torsion boxes, spray finishing, making a marking gauge, plywood, second-hand machinery, circular saws, education survey, blackwood, Parker furniture, making lathes, gift trade woodturning, computer software, veneering. Free Special Timbers Poster



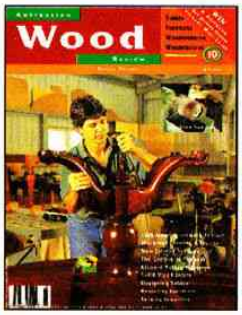
No. 8

Designing cabinets, panel saw review, desert & inland timbers, plantation forestry, Robert Dunlop, mini-lathe review, turning a lidded bowl, Wendell Castle, hingeware, the chisel, history of machinery, mahogany, making a Vienna regulator clock



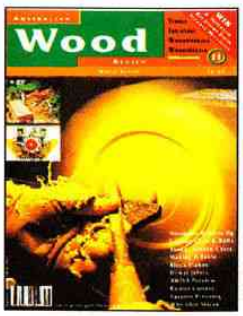
No. 9

Low cost machinery, planer blades, traditional workbench plans, restoring furniture, building timber decks, Stephen Hughes' turned and carved bowls, Salvaged timber, Woodworking in Europe, cordless technology, pricing your work, oak.



No. 10

Anniversary Australian Woodwork feature, designing tables, buying timber, joining systems, turning jewellery, pedestal table project, mortise & tenons, restoring furniture ct'd, mulga turnings, Raffan interview, machine sanding, solid wood joins.



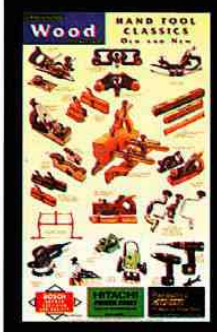
No. 11

Dovetails, router cutters, veneer reference chart, dowel joints, carving claw & balls, making a colonial table, block planes, turned and carved 'winged' forms, AWISA 96, Cook's Endeavour, collecting timber, walnut, tiger myrtle, vacuum pressing, Jah-Roc, MAP

Reference Posters

World Timbers Poster

33 of the main international species, map with locations & colour pictures of the timbers, excellent reference poster. 890 x 550mm



Hand Tool Classics

Some of the most collectable and sought after hand tools ever made, all beautifully photographed and presented, brief details on all tools, 890 x 550mm

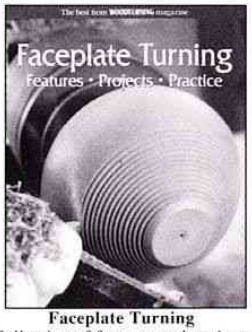
Special Australian Timbers

29 rare species predominantly from inland Australia, includes brief reference text and pictures, 890 x 550mm

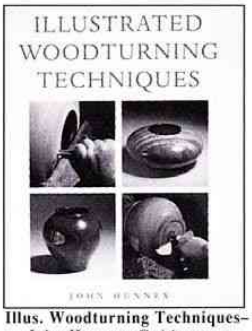
Winners will be announced in March 97 issue 14. Winners of issue 10 and 11 subscriber draw prizes are: Hoffman Key Joining System, model MU-C, valued at $1729: L.Franks, Tumbi Umbi. Vicmarc VL100 mini-lathe: S.Dudley, Laidley.

Bookshelf

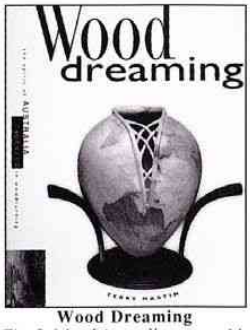
Wood Review's Mail Order Bookshop— There's nothing like a good book!



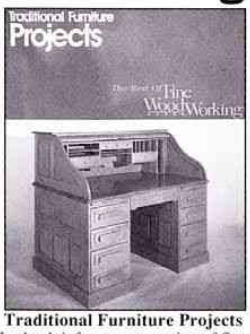
Faceplate Turning
Collection of features and projects –the best from WOODTURNING magazine $24.95+p&p



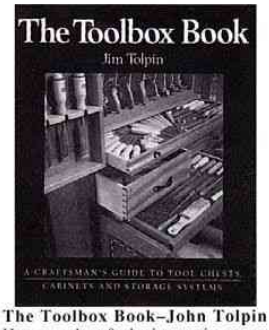
Illus. Woodturning Techniques–John Hunnex Guides you through the making of each form–over 100ph $29.95+p&p



Wood Dreaming
'The Spirit of Australia captured in woodturning' by Terry Martin **HB** $75.00+p&p



Traditional Furniture Projects
In-depth info on construction of fine period pieces.More advanced proj., detailed text & plans $35+p&p



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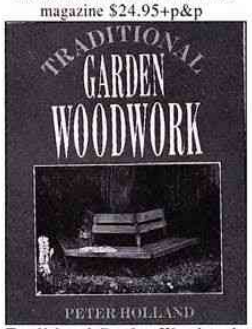
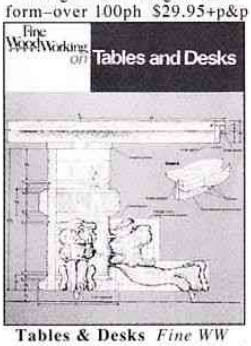
How to plan & design to increase productivity, and prevent losses. Complete guide.**HB** $80+p&p



Traditional Garden Woodwork –Peter Holland 25 projects incl picnic table & benches, tree seat, gazebo, pergola $34.95+p&p



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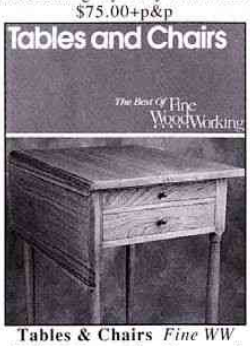
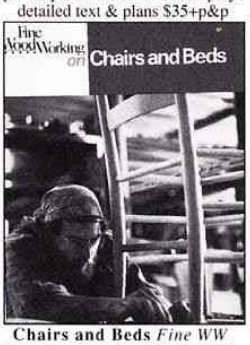
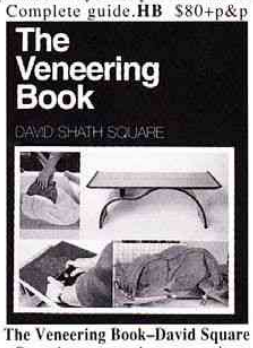
All about making tabletops and bases and desks. Includes many plans $24.95+p&p



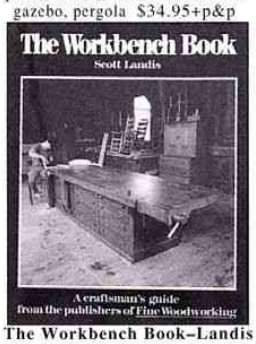
Tables & Chairs *Fine WW*
Projects from refined beauty of Windsor chair to solid utility of red cedar trestle table. $35+p&p



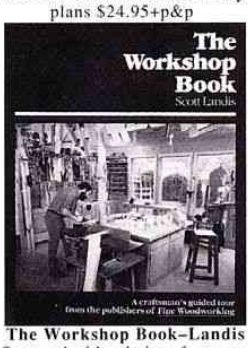
Chairs and Beds *Fine WW*
Expert chairmakers share on design & construction of stools, chairs, sofas, beds & cribs. $24.95+p&p



The Veneering Book–David Square
Complete manual to veneering practical guide to obtaining beautiful effects. $50.00+p&p



The Workbench Book–Landis
Benches for all kinds of woodwork 248 pp, colour,history,plans, photos HB$80+p&p



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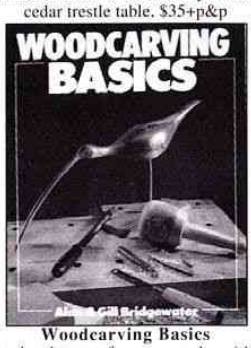
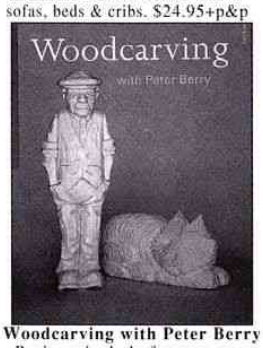
Crammed with solutions for everything from time-saving shop aids to elegant spacesavers **HB** $80+p&p



Woodcarving Basics
In depth,start-from-scratch guide to woodcarving for beginner includ. projects. $16.95+p&p



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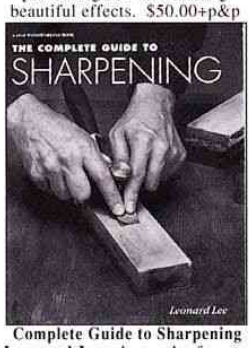
Projects include from two- to three-dimensional pieces with clear photos. $29.95+p&p



Complete Guide to Sharpening
Leonard Lee shows the fastest, most effective ways to sharpen woodworking tools **HB** $80+p&p

Recommended titles:

The Practice of Woodturning–Mike Darlow

Australian woodturner Mike Darlow has completely revised his classic explanation of the"how" and "why" of woodturning. Chapters include Wood Characteristics, Design, Lathes and Lathe Accessories, Workshop Procedures, Spindle Turning, Cupchuck Turning, and Faceplate and bowl turning. 268p with lots of b&w photos and line drawings. ($45+p&p)

Reading the Wood– Michael Elkan

'Reading the wood' means knowing which parts of a tree should be selected for the job in hand. Elkan's creative projects show the dramatic results that can be obtained from closer attention to wood's natural strengths. 15 designs including band-sawn box, hinged box, dovetail box, as well as several sculptured pieces. 128 pages, colour photos.
(PB $29.95+p&p)

Discovering and Restoring Antique Furniture–Michael Bennett

Illustrated guide for the buyer and restorer of antique furniture. How to date furniture, and how to restore damaged structures and surfaces with emphasis on finishing techniques (over 300 photos & drawings in colour and b&w). ($29.95+p&p))

Wood–Best of Fine Woodworking

Chapters on many North American cabinet woods and solid information on buying, drying and storing wood. The articles tackle both the beauty of the material and the practical knowledge necessary to work it. Lots of colour photos. (PB $35+p&p)

Modern Cabinetry–Jim Christ

320 b&w pages on European cabinetry design and construction techniques. Chapters on Edge Banding, Design, European style doors & drawers, and Assembling Cabinets. Lots of photos and illustrations. (PB$29.95+p&p)

Multi-Centre Woodturning-Ray Hopper

Twenty six projects ranging from tool handles, wine coasters and walking sticks–through to vases, bowls and turned fruits and some of Hopper's own imaginative fantasies. Step-by-step instructions, line drawings and photographs help Hopper to achieve his aim of demonstrating the potential of the lathe. (PB $34.95+p&p)

Small Woodworking Projects–F.W.W.

A collection of 35 project articles to tempt and satisfy the most discriminating of tastes, and you can finish most of the projects in a weekend or less. Enjoyable and intriguing projects, including: turned boxes, bowls, clockworks, pens and pencils, cabinetmaker's baskets and a footstool 128 pages with excellent col photos and detailed line drawings. ($35+p&p)

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.....Classic Finishing Techniques—Sam Allen PB.....$24.95
.....Classic Toys in Wood—Strombeck $16.95
.....Complete Guide to Sharpening—Leonard Lee HB $80.00
.....Complete Pyrography—Stephen Poole $39.95
.....Complete Woodfinishing—Ian Hosker $34.95
.....Design Book 6—Fine Woodworking $60.00
.....Designing & Making Wooden Toys—Kelly $34.95
..... .**Discovering & Restoring Antique Furniture**
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.....Make Money from Woodturning—Phillips $39.95
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WOOD DIARY

1996

2 September-12 October
Furniture 96
Arts + Industry Gallery, Melbourne
Tel (03) 9329 1972

3-7 September
Caloundra Art & Crafts Festival
Civic & Cultural Centre, Caloundra
(074) 925976

6-8 September
Illawarra Exhibition of Fine Woodcraft
Corrimal NSW
(042) 84 0009

14-15 September
Bomboora Festival
Recliffe, Queensland
Tel: (07) 3883 3122

15 Sep-31 Oct
Australian Flora Panels by Ainslie Pyne
John Nelson's Miniature Carvings
Bungendore Woodworks Gallery
Tel (06) 238 1682

28-29 September
Oberon Woodcraft Exhibition
Oberon, NSW
(063) 361 002

2-6 October
Taipei Int. Woodwkg Machinery Show
Tel 886 2 725 1111 Fax 886 2 725 1314

3-6 October
Furniture Woodtech '96, Bangkok
Reed Tradex Exhibitions
Tel 66 2 503 2199 Fax 66 2 503 4100 1

4-7 October
Treasures in Timber
Woodcraft Guild of the ACT
Canberra Inst. Technology, Reid Campus
Tel: (06) 281 6548

10 October—3 November
See The Light (30 designers)
Craftspace Gallery, The Rocks, Sydney
(02) 247 9126

13-20 October
Peninsula Woodturners Guild Exhibition
McClelland Gallery, Langwarrin, Victoria
(03) 9776 7095

11-13 October
Melbourne Timber & W.W.Show
Melbourne Exhibition Centre
Riddell: (02) 712 5623

18-21 October
Aust. Women's Weekly Craft & Art Fair
Brisbane Exhibition Centre
(02) 9977 0888

31 Oct-3 Nov
Adelaide Timber & W.W. Wood
Wayville Showgrounds
Riddell (02) 712 5623

2-3 November
Woodcraftsmens Guild of Qld Inc
17th Annual Exhibition of Woodcraft
Includes cabinetmaking apprentice awards
Mt Cootha Botanic Gardens Auditorium
Tel: (07) 3883 3122

6-10 November
Australian Craft Show
National Convention Centre, Canberra
(02) 9876 3905

14-17 November
International Arts, Crafts & Hobbies Expos
State Sports Centre, Homebush, Sydney
(03) 975 11901

19-24 November
Australian Craft Show
RAS Sydney Showground
(02) 9876 3905

19 Nov-31 Dec
New Turning: Works by Richard Raffan & Terry Baker
Bungendore Woodworks Gallery
(06) 238 1682

21-24 November
Int'l Arts, Crafts & Hobbies Expos
State Sports Centre
Homebush, Sydney
(03) 9751 1901

22 Nov-1 Dec
Wonderful Wood
13th Annual Woodwork Festival & Exhibition
Victorian Woodworkers Association
Doncaster, Victoria
Tel (03) 9497 1916 Fax (03) 9387 7135

13 Dec-Jan 26
Dame Mary Durack Outback Crafts Awards
Queensland Museum, Brisbane
(07) 3221 5300

1997

4-25 January
Australian Wood Design Exhibition
Browning St, Orbost
Entry forms (051) 541 773

6-17 January
McGregor Summer School
Toowoomba, Queensland
(076) 36 40000 Fax (076) 36 4888

4-8 March
Malaysian International Furniture Fair '97
Putra World Trade Centre, Kuala Lumpur
Tel 0011 603 780 8275
Fax 0015 603 781 0355

5-10 May
LIGNA Hannover
Includes interHOLZ
Germany
Tel (+511) 89-31632

29 May-1 June
International Arts, Crafts, Hobbies Expos
Caulfield Racecourse, Melbourne
(03) 975 11901

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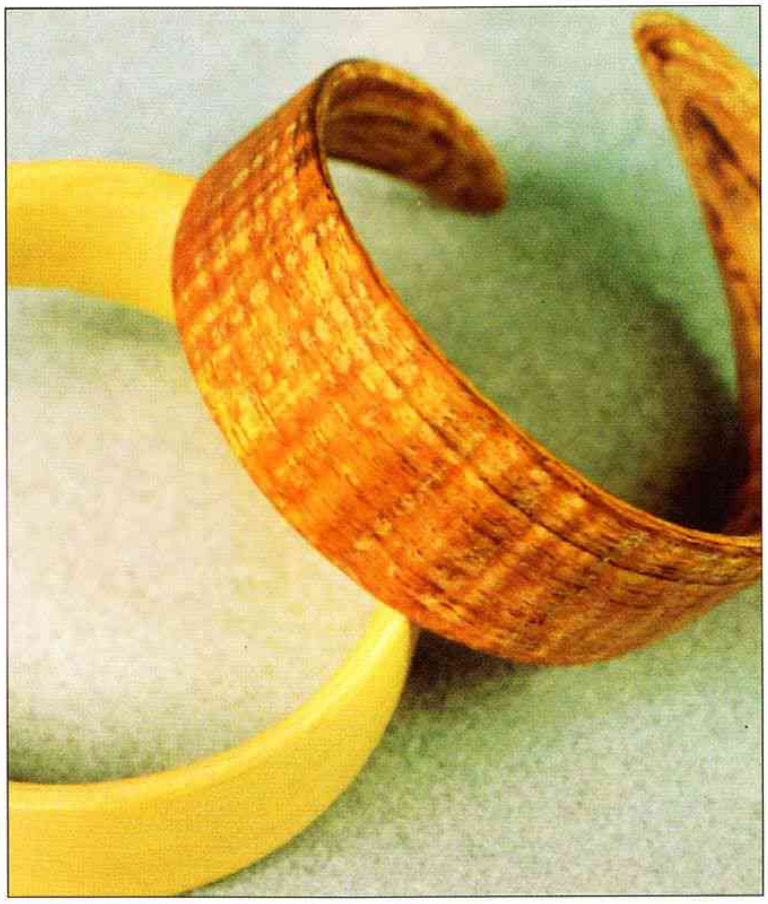

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