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Glen Holst Furniture, p.35

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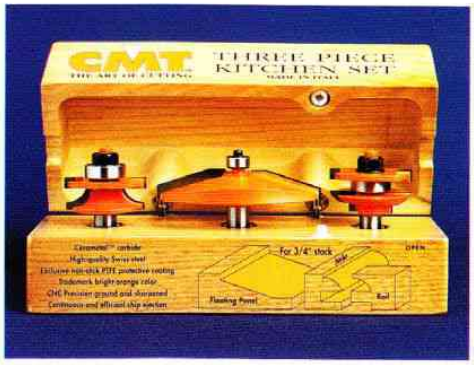

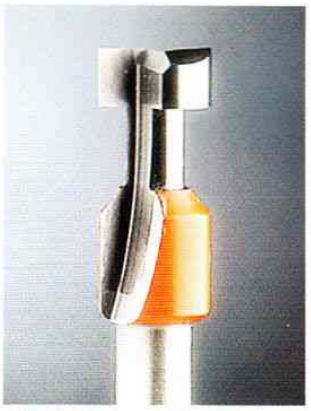

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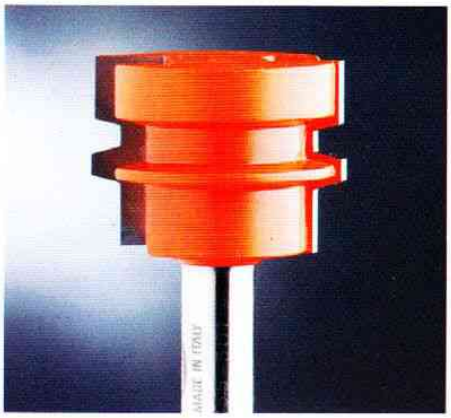

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Australian Wood Review

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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.

Turning segmented forms, p.52

EDITORIAL

This issue of Australian Wood Review we try to take a look at different aspects of the 'bigger' picture. The late Sonia Farley was notable for a number of reasons, the most obvious being for her sensitively carved bowl forms. Not only was Farley a woodworker at a time when few, let alone women, sculpted or carved wood, but her work stands at the vanguard of the renaissance of woodcraft which strengthened in this country in the 70s. Eileen Chanin's review of Farley's recent retrospective is a condensed history of woodwork in Australia.

Recycle, reduce and re-use is the catchcry of the environmentally aware—and rightly so. But, despite the fact that there is definitely a market for the 'country' or 'antique' how significant is the recycled timber furniture industry? The industry associations we contacted were unable to enlighten us. In one case, interestingly, we were told that recycled furniture was pretty much only for 'tree huggers'.

When you consider the respect which natural feature grade (formerly 'defect' or structural grade only) timbers now command, from manufacturers and buyers alike, the above attitude seems fairly short-sighted. Talking to several manufacturers (albeit small-scale) we were told that their buyers were not only attracted to recycled look, but motivated by an environmental awareness.

In another story this issue we present a collation of responses to a short survey we recently conducted. The survey was sent to around thirty timber suppliers and our prime objective was to find out what people are currently buying, and which, in the opinion of the timber merchants, are value for money species. Besides the answers to these questions we also discovered (predictably) that timber is probably going to become a whole lot rarer and more expensive in the future.

On the really 'big' side of the picture we also take a look at some of the world's giant tree. I know size isn't everything but who cannot fail to be impressed by living organisms that reach 100 metres or more in height. Many of today's tree giants are, remarkably (and sadly) secondary to other giants who have been felled.

This issue's cover story looks at a furniture making company, which in spite of its small size, is now specialising in high profile commissions. Glen Holst has learnt how to market his furniture to the sort of clientele who appreciate and can afford the sort of furniture he wants to make.

I can't sign off without bringing to your attention this issue's subscriber gift offer. We have 200 precision ground, Swedish steel, *Frosts* knives to give to the first 200 people who subscribe or renew their subscription to Australian Wood Review for two years. Don't miss out on this offer, see p.92 for details.

Editor, Linda Nathan

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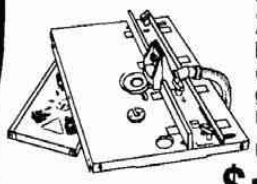

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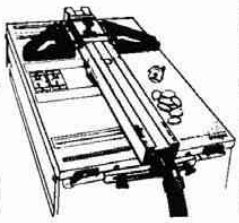

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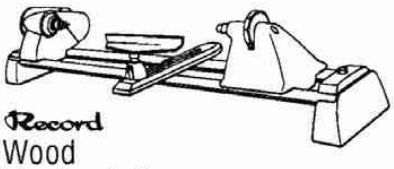

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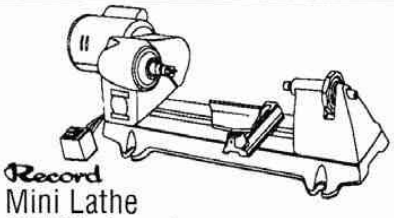

Record Mini Lathe

RPML300. 3 speed, 1/3 horse power, 12" between centres.

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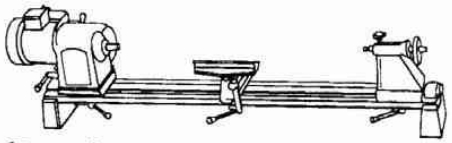

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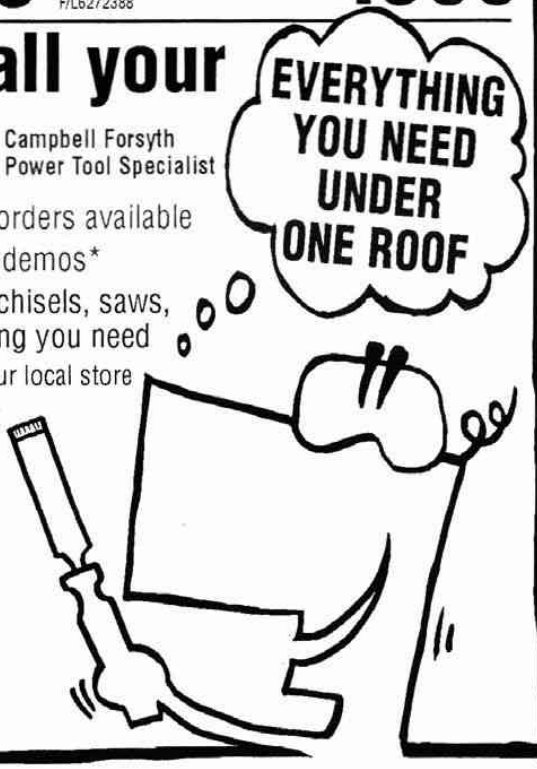

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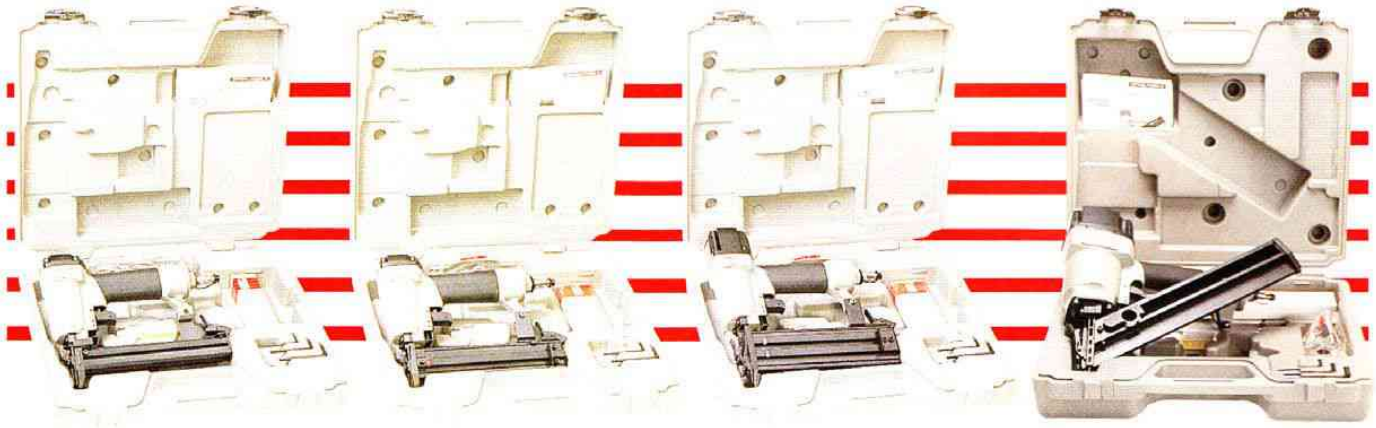

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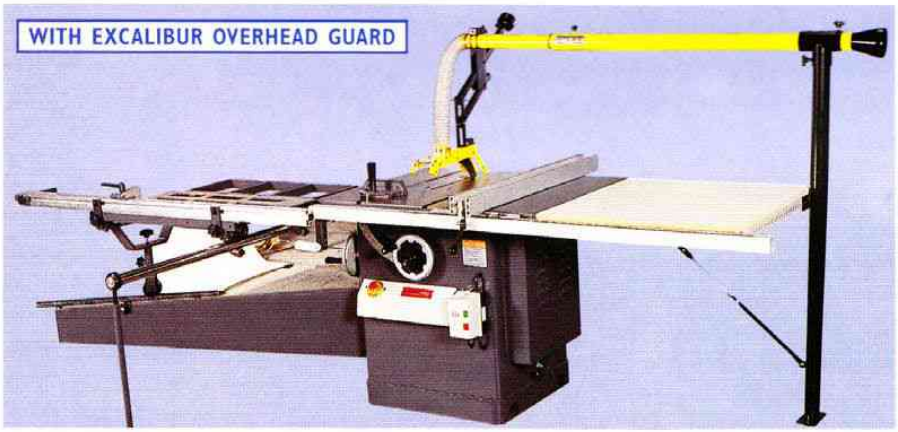

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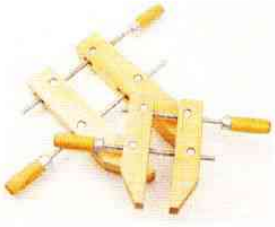

TILTING HEAD SPINDLE MOULDER. This industrial quality machine features a ground, cast iron table with mitre slot, mitre gauge, an adjustable fence and a 30mm spindle. The head tilts to 45°, and has an optional ½" collet for router bits. Router bit not included.
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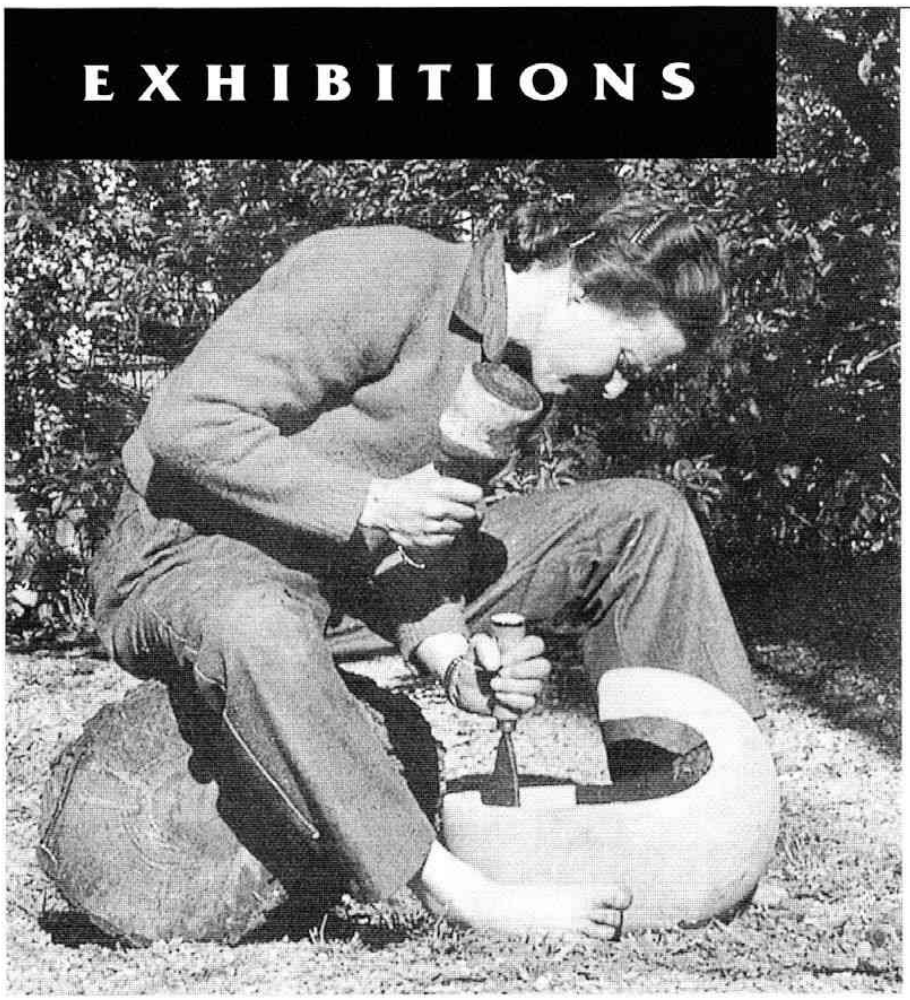


Sonia Farley (1927—1997)
Genesis, Morphology, Growth

Penrith Regional Gallery, March, 1998

Reviewed by Eileen Chanin

Sonia Farley was a wood artist. Self-taught, she began carving during the 1950s in Sydney where she worked with wood until her death in 1997. In her work she combined a love for wood with an affinity with nature and sympathy for modernist principles; namely, truth to materials, less is more, and pure form. Her artistry was the seemingly effortless way in which she brought these elements together in the functional containers and furniture she made.

Everything she made was sculptural, literally carved from the solid. She carved natural forms to their ultimate simplicity. Her appreciation of volume and shape was unerring. As with all direct carving, her work was a process of subtraction: a thinning away while maintaining respect for the structure of the wood, to release an imaginatively conceived shape perceived in the block of raw material.

Family influences played a part in shaping her approach. Her maternal family were Quakers from whom came her uncompromising self-sufficiency. Her mother and maternal grandmother were amateur botanical artists and keen gardeners, from whom Farley developed a keen observation of nature, sharp environmental awareness, and horticultural skill. Her father introduced her to woodworking when he established a home workshop for furniture restoration. From him, she inherited her practicality, crafting ability, and skill with tools.

She was a member of the family behind Farley and Lewers, the civil engineering and construction company which built the Port Augusta-Port Pirie Railway in 1937. Her uncle was Gerald Lewers, whom art critic Laurie Thomas in 1963 credited with reviving sculpture which until then 'was petrified in Australia'. Lewers blended idea and material in unique and harmonic forms, tempered by intimate understanding for materials and acute observation of his subject. A brilliant carver, Gerald Lewers deeply influenced his niece, who carved with him. Like him, she held that 'there was an extremely close communication between forms as found in nature and sculpture, so that the shape of a piece of wood or stone often suggested an idea'.

Believing that 'we see in art what we bring to it', she brought natural beauty to her art. Her wooden forms were based on organic shapes found in nature to which she was deeply attuned. An avid bushwalker, she travelled Australia seeking suitable native woods. Grasstree roots picked up when walking became carved bowls and she found hidden promise in 'nuisance' woods, such as mangrove and privet.

Her knowledge of timbers, particularly those native to Australia, was unequalled. She loved native timbers for their 'colour range, decorative figure and handling qualities not yet appreciated by many people'. She considered the decorative value of timber to be unexploited.

Sonia Farley fused the formal perfection of geometry with the vital grace of nature. She preferred to suggest organic forms and growth, rather than to reproduce plant or animal shapes. The sensitive feeling for material reflected in her carvings gives no hint of the labour involved in their making. She summed up her work as being concerned with 'morphology, genesis, growth, usefulness, imagination'.

Her attraction to modernism was fuelled by an honesty which was the backbone to the many parts of her making: honesty to the original form, the material she carved, and to herself. Her preference for direct carving is in keeping with the importance which modern aesthetic thought assigned to respecting the physical properties of any medium. Wood was her chosen path, and she never wavered from her choice.

She lived privately, dedicated to her work. Her need for privacy was such that she exhibited under the pseudonym of Toni Carver. She was known to have gone incognito when her work was displayed in order to gauge the real response to it.

In 1964 at Sydney's Macquarie Galleries she held the first of four solo exhibitions which featured 76 hardcarved bowls.

These were carved from logs collected in the mangrove swamps near Sydney, the Nepean River banks, Sydney gardens, the Atherton tablelands and rainforest pockets of the north and south coasts of NSW. In a near sell-out show, works

Shark's Egg

were bought by the Art Gallery of NSW, the Reserve Bank of Australia, and collectors like author Patrick White.

She exhibited again, at the first exhibition of the Craft Association of Australia held at the Australian Design Centre in 1967. Her second solo show was at her St Ives home in 1970 where, as well as bowls, she also exhibited furniture and metal work. Furniture included two substantial Tasmanian blackwood tables of boardroom proportions, wooden seats of silky oak, radiata pine and camphor laurel and tables of rose mahogany. She was working towards her fifth exhibition, before her death, and this was presented by the Lewers Bequest and Penrith Region Art Gallery in March 1998.

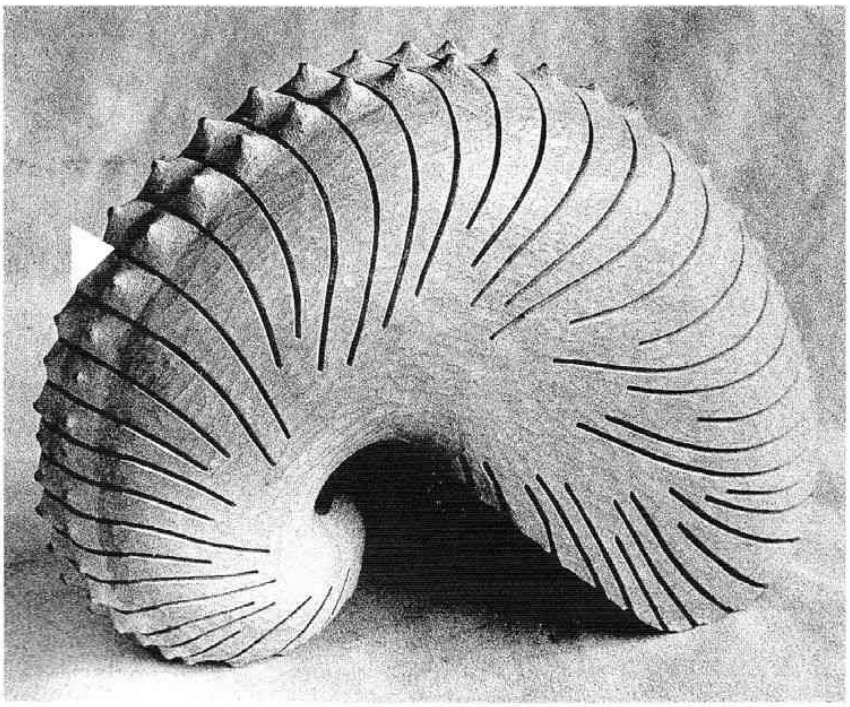
When she began carving in the 1950s, there were few artists like Sonia Farley. A contemporary, Tasmanian sculptor Stephen Walker (b.1927), who worked in wood and bronze, made forms which closely resembled actual forms in nature. Though Walker adopted vegetative form as a point of departure and used wood, his similarity with Farley is tenuous. Farley may have seen Walker's chipped and adzed bowls, or the bowls and rough-hewn furniture of Stanislav Halpern (1866-1941) or those of Heinz Moritz (b.1931) both of Victoria.

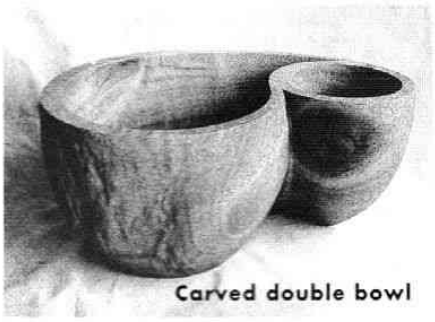
There were few creative woodworkers active in Australia during much of the time she was carving, and little support existed in the way of information, tools and supplies. Most woodworkers were male, who were traditional in their approach, working from the tradition of cabinetry to make reproductions.

Woodworking courses were orientated to trade. Serious interest in wood did not develop in Australia until the mid-1970s. Even by 1984, Leon Sadubin wrote in the 1984 *Craft Australia Yearbook* 'Woodcraft in Australia is in an early developmental period. Only a handful of workers are established while a large number of new-comers is in the process of building up'.

Sculptural bowl

Earlier creative woodworkers included Melbourne-based cabinetmakers Robert Prenzel (1866-1949), who produced Art Nouveau furniture with Australian





Carved double bowl

motifs; L.J. Harvey (1871-1949) from Brisbane, who made distinctive furniture in native timbers; Austrian-born Schulim Krimper (1893-1971), the Melbourne cabinetmaker who combined his creative use of Australian timbers with his admiration for the simple furniture of the Biedermeier style; and Gerald Lewers (1905-1962), who expressed an unrivalled affinity with the Australian environment unequalled by any other woodworkers at the time.

Sonia Farley chose to be private about her work so that she could pursue it without compromise. A non-conformist, she did not want her sensibilities impinged upon and perhaps corrupted. She was unconventional, an independent woman working with a medium mainly worked by males, a sculptor carving when little sculpture and even less carving was being made, and she insisted on functionality. Her focus was clear. It lay with nature and she sought to give concrete expression to the beauty of the surrounding natural world. She has left a unique legacy.

Eileen Chanin of Macquarie Galleries, Sydney, curated the Sonia Farley exhibition.

Photos: Jill White

Left: 'Of The Sea'

EXHIBITIONS

Objects of Ideas

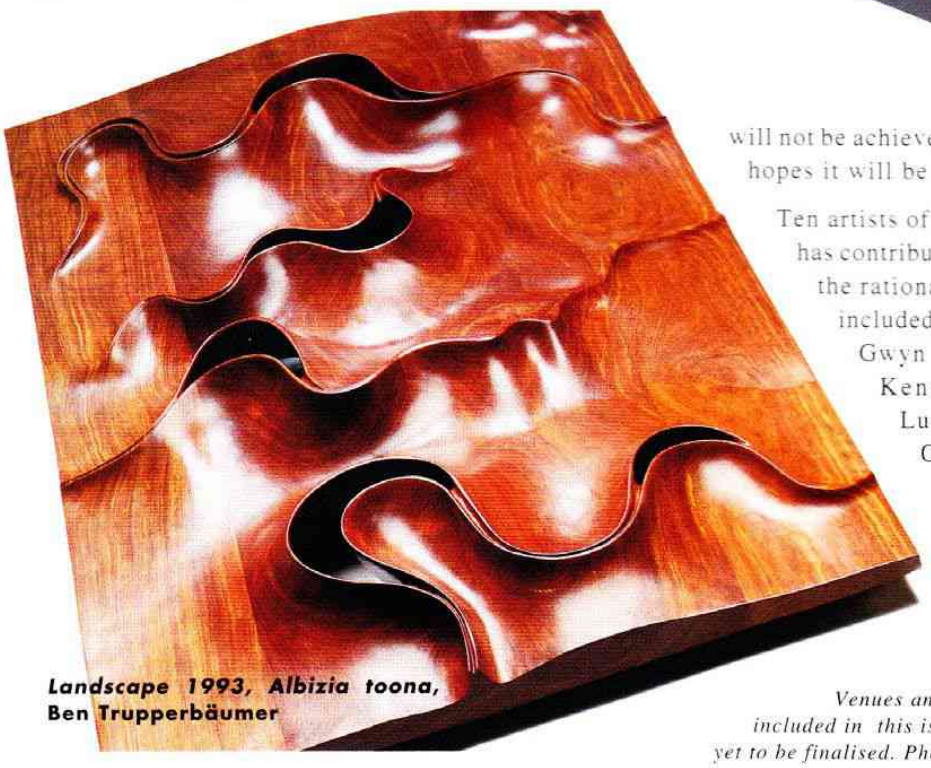
Curated by Jacquelyn Murphy

The idea for this exhibition grew out of Jacquelyn Murphy's perception that contemporary craft was not accessible enough to the regional areas of Queensland. Murphy started working on the exhibition in 1995 and later obtained funding from the Regional Galleries Association of Queensland and the Australian Council. The theme of the exhibition developed into an exploration of the conceptual side of contemporary craft practice.

In the handsome accompanying catalogue she writes that the symbolic and cultural significance of objects are often masked beneath their 'functionality and familiarity'. The craft traditions behind each of the makers in this exhibition have been translated into contemporary contexts which they in turn serve to comment on and interpret.

Noel Frankham (Director Visual Arts, Craft and Design, Australia Council) supports the promotion of the intellectual role of contemporary craft in favour of familiar preoccupations with 'materials, process, function and tradition'. In so saying, Frankham lays bare again the old and tired bones of the art versus craft debate with the passionate statement of the fact that the two concepts are integral to one another and not always separated in other cultures. In his opinion it is necessary to 'reinvigorate and elevate community regard for craft to something more than recreational handicraft'. While this goal will not be achieved with this exhibition alone, Frankham hopes it will be a catalyst.

***The Teratical 3*, cedar, MDF, steel, *C Teraph 7*, cedar, veneered MDF, Helmut Lueckenhausen.**



***Landscape 1993, Albizia toona*, Ben Trupperbäumer**

Ten artists of different media were chosen and each has contributed an artist's statement which explains the rationale behind their work. The craft artists included are Marion Gaemers, Morley Grainger, Gwyn Hanssen Pigott, Brian Hirst, Sheridan Kennedy, Warren Langley, Helmut Lueckenhausen, Marion Marshall, Susan Ostling and Ben Trupperbäumer. As to her selection of these, Murphy writes 'their commonality lies in their dedication to the knowledge and development of their medium, which in turn informs the conceptual content of their work.'

Venues and dates for the touring of this exhibition are included in this issue's Wood Diary, though some of these are yet to be finalised. Photos: David Sandison

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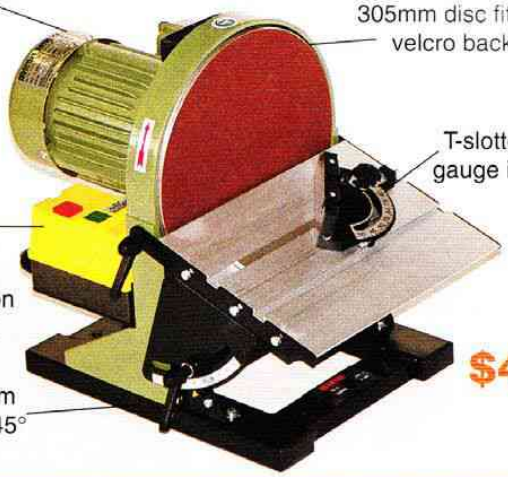

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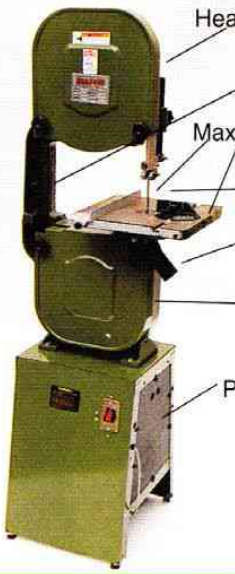

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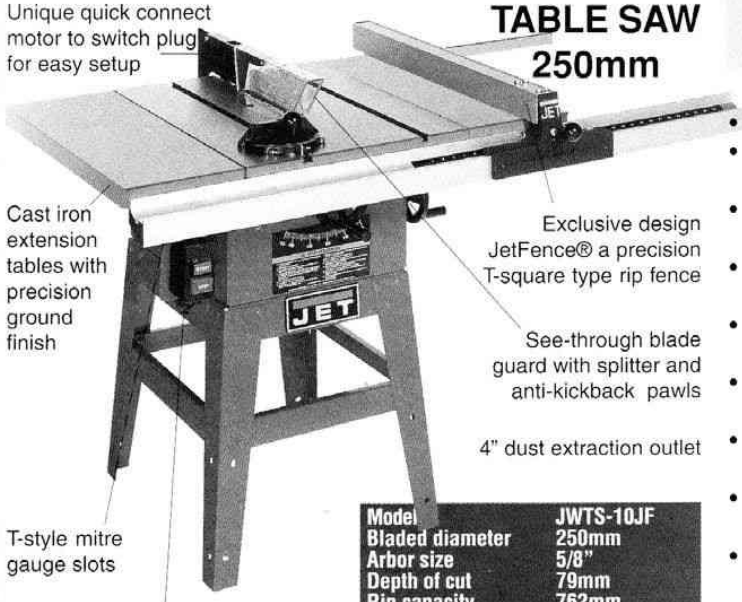

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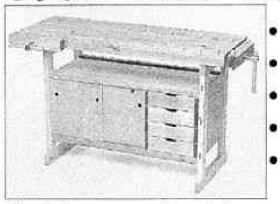

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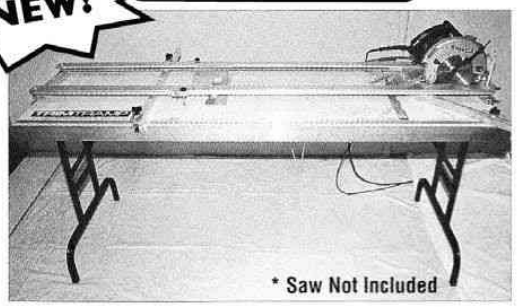

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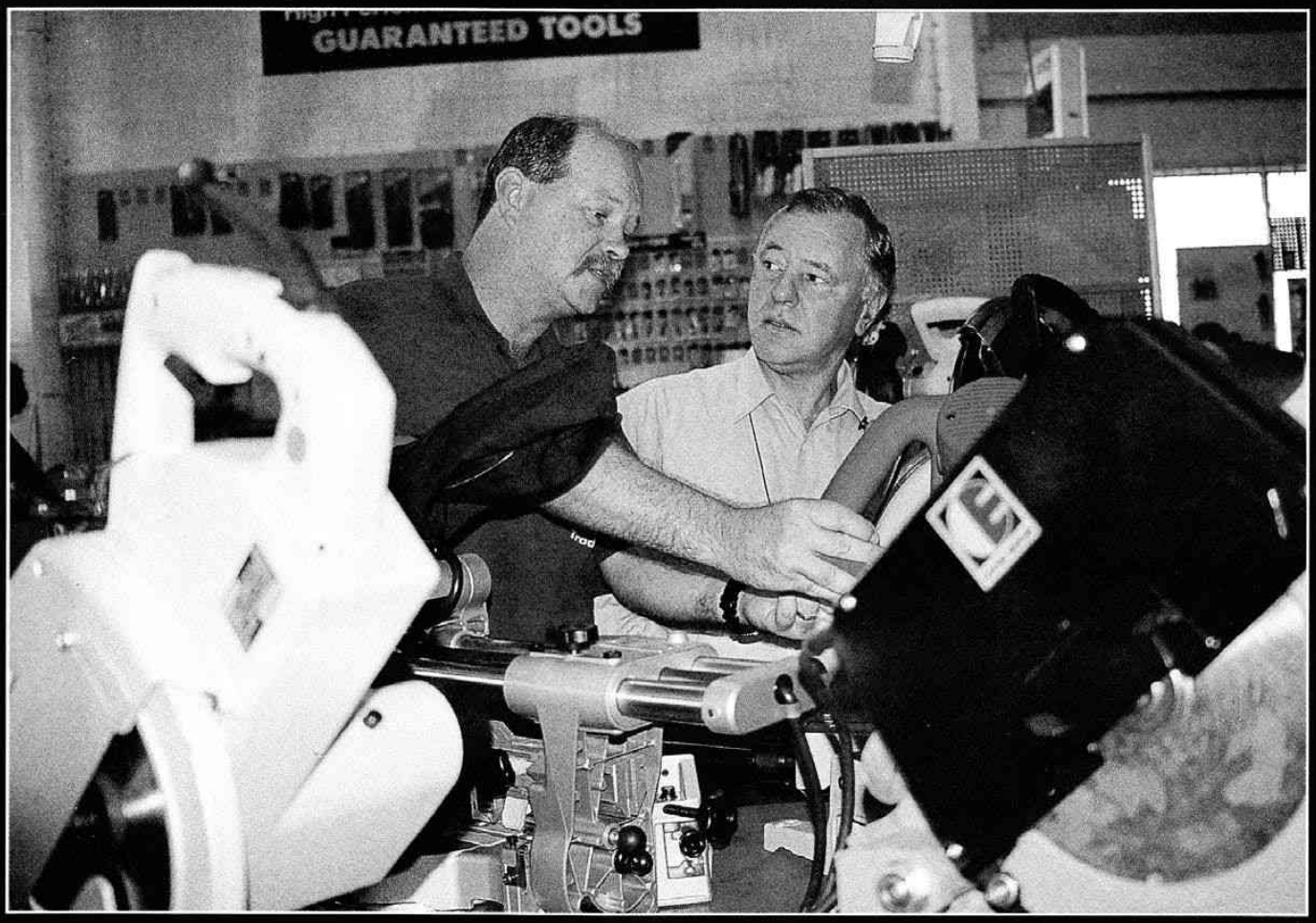
By James Brook

ANYWAY YOU CUT IT: SLIDING COMPOUND MITRE SAWS



It is now quite a few years since powered mitre saws (also called drop saws) came onto the market, creating in the process a small revolution. Three tools—the hand saw, the traditional mitre box and to some degree the radial arm saw— were now available as one.

Capable of cutting angles from 90° through to 45° while being portable, powerful and fast, the mitre saw stands ready to handle both fine work, such as architraves and internal joinery, as well as house framing. In the cabinet shop the mitre saw is an all-rounder, and can be used for narrow docking, joint cutting, picture framing, detail work and, as you would expect, mitres and other angled work.

Power mitre saws consist of a circular sawblade mounted on a pivoting arm which drops down to cut. This assembly is mounted on a turntable with pre-set detents allowing all mitre angles as well as 90° to be cut. Capacity at 90° is usually around 130mm x 90mm.

The second generation of mitre saws are termed sliding compound mitre saws, and will, as the name implies, cut all angles including compound ones—plus slide out to allow a crosscut of around 300mm. These extra capabilities come at a price, but their larger capacity and flexibility might be just what you need.

CHOOSING A MITRE SAW

The problem for the potential buyer of a compound mitre saw is knowing how to select the right machine. I visited a local power tool dealer and was confronted with a choice of around sixteen different mitre and sliding compound saws.

Usage

The first and probably most important question our friendly tool salesman asked was, what sort of work the saw would be expected to perform. For straight carpentry work standard drop saws (which, as mentioned above, have proven themselves in the field for many years now) were recommended. Trade buyers will probably need to spend at least $500 for a quality name brand whilst DIY and occasional users can purchase a more basic machine for around $399-450.

For the cabinetmaker or carpenter wanting more sophistication and greater capacity the sliding compound saws were recommended. Along with all the bells and whistles, these saws offer around 300mm crosscut capability as well as the whole gamut of cutting angles.

Hitachi C8FB2, 216mm 60-tooth blade, made in Japan, $859, 1370 watt, compounds left and right, dust bag, crosscut capacity at 90°: 305mm x 75mm, at 45°: 220mm x 75mm.

Hitachi C10FS, 255mm 60-tooth blade, made in Japan, $1099, 1450 watt, compounds left and right, dust bag, crosscut capacity at 90°: 312mm x 90mm, at 45°: 230mm x 90mm.

Power

Most machines have regular brush power tool motors running through gears. These are very noisy but offer excellent power and torque. The *Elu PS174* and its bigger brother the *DeWalt DW707* use a belt drive from the motor which reduces noise quite a bit, while the *Elektra Beckum KGS-300* uses an induction motor which is exceptionally quiet. All the saws handle softwoods quite easily, but for regular cutting of Australian hardwoods you should consider machines with at least 1400 watts, 1600 watts being best. Be aware that rated input figures are always different to actual output, and performance is always affected by the blade.

Blades

The better the blade, the better the cut—a quality fine-toothed blade will cut smoother and leave a superior finish. Check out the blade carefully on any machine you are considering purchasing. For example, some time ago I bought a European saw and was very disappointed with the quality of cut. I then spent another $80 on a better blade. The cut was still not good enough however, and I came to realise that what I really needed was an even better blade with more teeth.

A good blade supplied as standard is thus a major selling point. For a 305mm diameter blade look for 80 or more teeth and for a 255mm diameter blade look for 60 teeth or more. If you are replacing a blade on a mitre saw be careful that you only use blades of the correct size and specification as recommended by the manufacturer. A good blade will generally have a negative rake which makes it less likely to 'grab' the workpiece and therefore much safer to use. Your tool dealer should also be able to guide you with regard to suitable sawblades.

The price of sawblades will vary depending on quality, and quality is what you want because the performance of a cheap blade will deteriorate very quickly. A 300mm blade with 100 teeth will cost between $150 and $200 and a 255mm blade with 80 teeth between $120 and $150, plus you may need to allow for sales tax. The blade must always be kept sharp in order to give a good cut, reduce wear on the machine and you, and be safer to use.

Dust

The machines we saw came with either a dust bag or else a dust extraction outlet. If you don't have a dust extractor and there is no dust bag then you can expect a spray of shavings to pour out

Elektra Beckum KGS300, 250mm 24-tooth blade, made in Germany, $945, 1600 watt, compounds left only, dust outlet, crosscut capacity at 90°: 300mm x 53mm, at 45°: 212mm x 53mm, quiet induction motor.

Metabo, KGS E1670, 210mm blade, made in Germany, $1136, 1600watt, compounds one way only, dust outlets, crosscut capacity at 90°: 270mm x 52mm, at 45°: 184mm x 52mm, belt drive.

Makita LS1013, 255mm 80 tooth blade, made in Japan, $1039, 1430 watt, compounds left and right, dust bag, crosscut capacity at 90°: 305mm x 91mm, at 45°: 215mm x 91mm.

DeWalt DW708, 305mm 60-tooth blade, made in USA, $1349, 1500 watt, compounds left and right, dust bag, crosscut capacity at 90°: 305mm x 114mm, at 45°: 218mm x 114mm.

after each cut. This may be okay on a building site, but allow this to happen all day in a workshop situation and you'll be choking. If you don't have some sort of dust extraction system you should go for a mitre saw with a dust bag. This is one more feature which may help to narrow down your choice.

If Looks Could Count

Selecting power tools and machinery would be a heck of a lot easier if it were possible to try them out at the point of purchase. Obviously the consequences for the retailer in terms of noise, dust, damage and safety hazards would be hellish. Despite this, various differences between makes and models are readily apparent.

The *Makita* and *Hitachi* saws appear very well-made and finished, with the *Makita* possibly slightly ahead in this regard. The *DeWalt* and *Elu* saws have a rugged appeal, although the quality of finish in some of the castings could be better. The *DeWalt 708* looks very desirable with its hi-tech look and big cutting capacity, although for some reason the yellow plastic casings on the *DeWalt* saws seem to soil fairly easily.

The *Delta Sidekick* is an attractive proposition with its stand, table extensions and 2 year warranty. This saw has a nicely detailed finish. The *Elektra Beckum* has been around in its current form for years now and looks well-made and finished. The guard is a solid alloy affair which makes for a slightly heavier handle and switch. The *Ryobi* appeared well-made all round, except for a surprisingly tinny angle pointer. The *Metabo* has a solid and well-machined feel, however the 210mm blade size is an obvious limitation to its capabilities.

Capacity

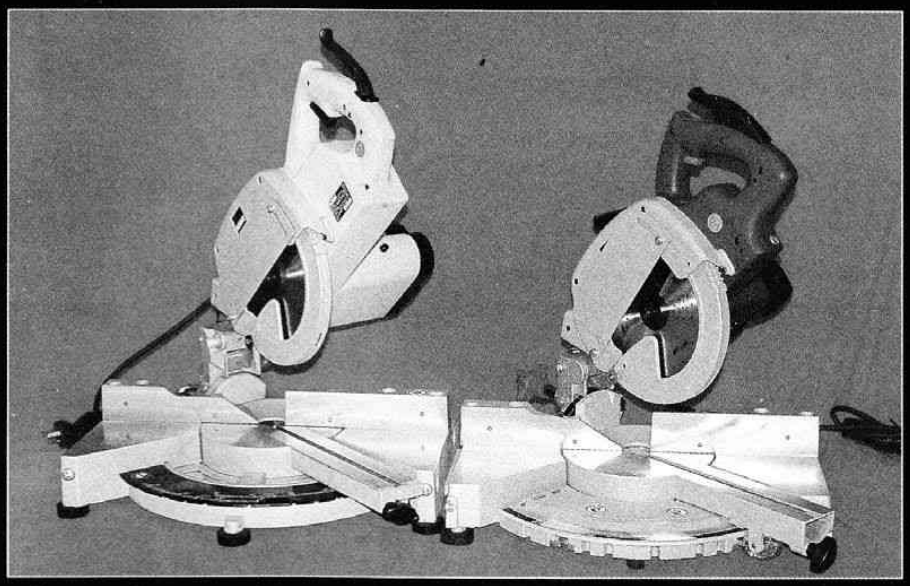
The larger 300mm diameter saws literally have the edge over the 255mm saws as far as thickness of timber they can cut, so if you need to cut 90mm or thicker stock regularly you should go for the bigger saws.

The Final Choice

The quality of sawblades supplied varies, and it is here that the *Makita* saws certainly have an advantage. The *Makita LS 1212*, for example, comes with a very nice 100 tooth blade while the *LS 1013* has an 80 tooth blade. On paper the *Ryobi TS215* stacks up well with a full 305mm crosscut, but you'll need to upgrade the sawblade which will bump up its otherwise low price tag.

Makita LS1212, 305mm 100-tooth sawblade, made in Japan, $1385, 1650 watt, compounds left and right, dust bag, crosscut capacity at 90°: 310mm x 98mm, at 45°: 220mm x 98mm.

Ryobi TS215, 255mm 40-tooth blade, made in Taiwan, $739, 1200 watt, compounds left and right, dust bag, crosscut capacity at 90°: 305mm x 67mm, at 45°: 216mm x 67mm.



Left: DeWalt DW707, 215mm 24-tooth blade, made in Italy, $759, 1600 watt variable speed, compounds one way only, dust outlets, crosscut capacity at 90°: 270mm x 60mm, at 45°; 190mm x 60mm, belt drive.

Right: Elu PS174, 216mm 24-tooth blade, made in Italy, $675, 1200 watt, compounds left and right, dust outlets, crosscut capacity at 90°: 254mm x 52mm, at 45°: 174mm x 52mm, belt drive.

For heavy duty woodwork you'll not go wrong with a *Makita* or *Hitachi*, but neither of these are cheap. The *Makita LS1212* presents as the top of the range and not surprisingly is also the most expensive. The *Elektra Beckum* seemed to be the quietest and will appeal to those wanting a steady workhorse. The *Elu PS174* seems good value for the price although it will only cut 52mm thick timber so, for a few extra dollars, its brother, the *DeWalt 707*, is well priced with its extra power and greater capacity. Once again though, you'll need to allow for money to upgrade the blade.

A saw-carriage assembly such as the *Trimtramp* is a budget priced non-powered device which will get you going for under $300 and uses your existing portable power saw. With so many options your final choice will be determined by your needs, your budget and the level of quality and durability you perceive in products on show. It is to the buyer's benefit that there is so much to choose from.

All prices quoted include tax and were correct at time of writing, contact suppliers for current prices. Thanks to Daryl Coey of Trade Tools, Queensland (07) 3808 5300 for assistance with this story.

Bunnings Warehouse (*De Walt, Makita*) see p.3

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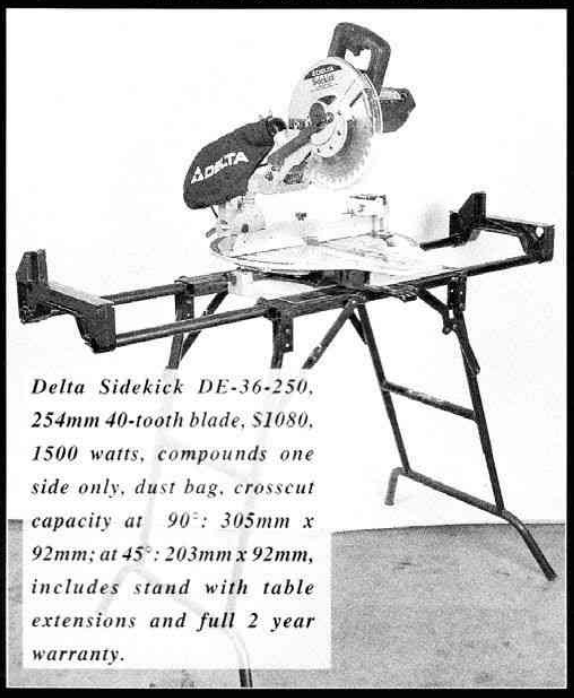
MRH Woodworking Centre (*Elektra Beckum, Hitachi*) (07) 3283 1558

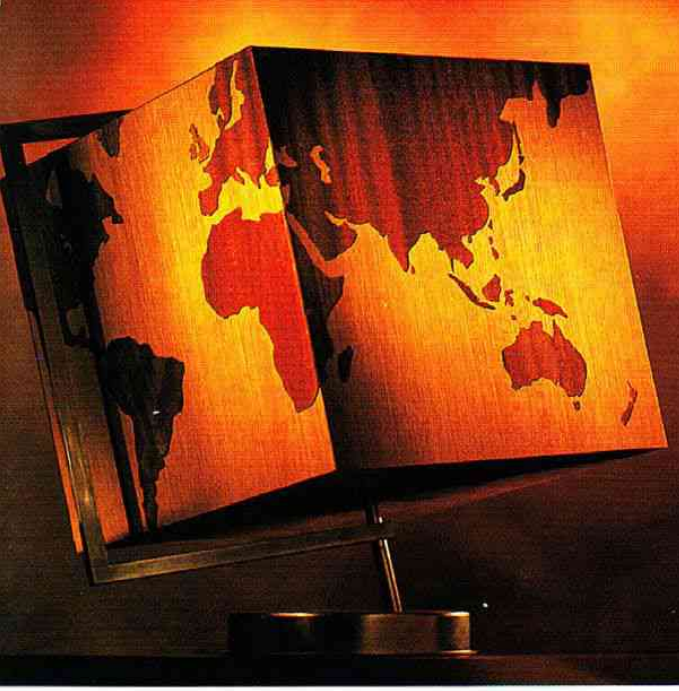
Power Tool Specialists (*Makita, Metabo*) (02) 6280 4966

Promac (*Trimtramp*) 1800 773 267

Woodman Group (*De Walt, Elektra Beckum, STB*) (03) 9555 5199, (02) 9708 3233, (07) 3844 4433, (08) 8346 4561, (08) 9272 3844



Delta Sidekick DE-36-250, 254mm 40-tooth blade, $1080, 1500 watts, compounds one side only, dust bag, crosscut capacity at 90°: 305mm x 92mm; at 45°: 203mm x 92mm, includes stand with table extensions and full 2 year warranty.



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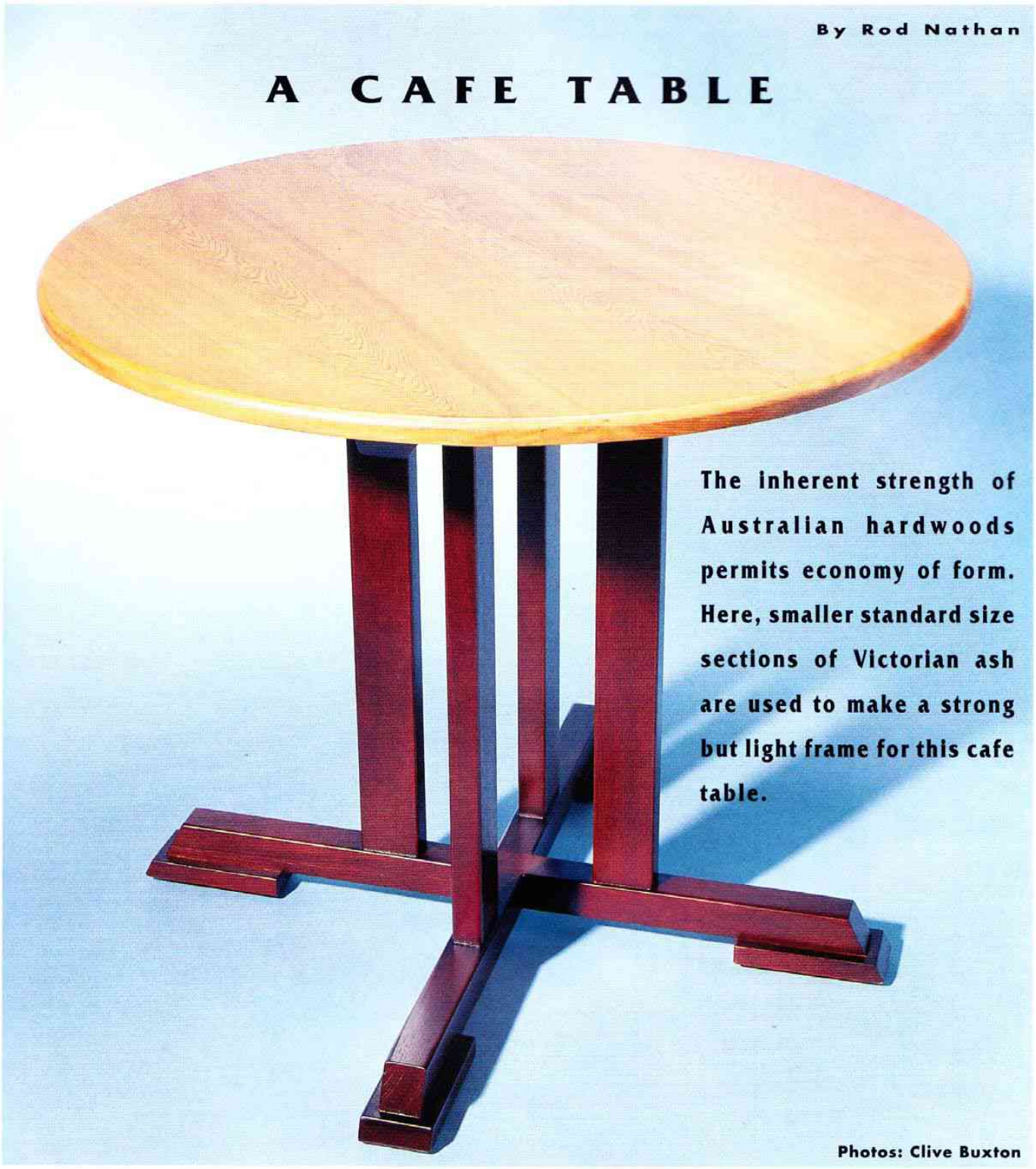
T.U.I.

By Rod Nathan

A CAFE TABLE



The inherent strength of Australian hardwoods permits economy of form. Here, smaller standard size sections of Victorian ash are used to make a strong but light frame for this cafe table.

Photos: Clive Buxton

I had three goals when I designed this table—to make a small, cafe-style table which would be pleasing to the eye, to use Australian hardwood in small standard sections and lastly, to keep the construction simple.

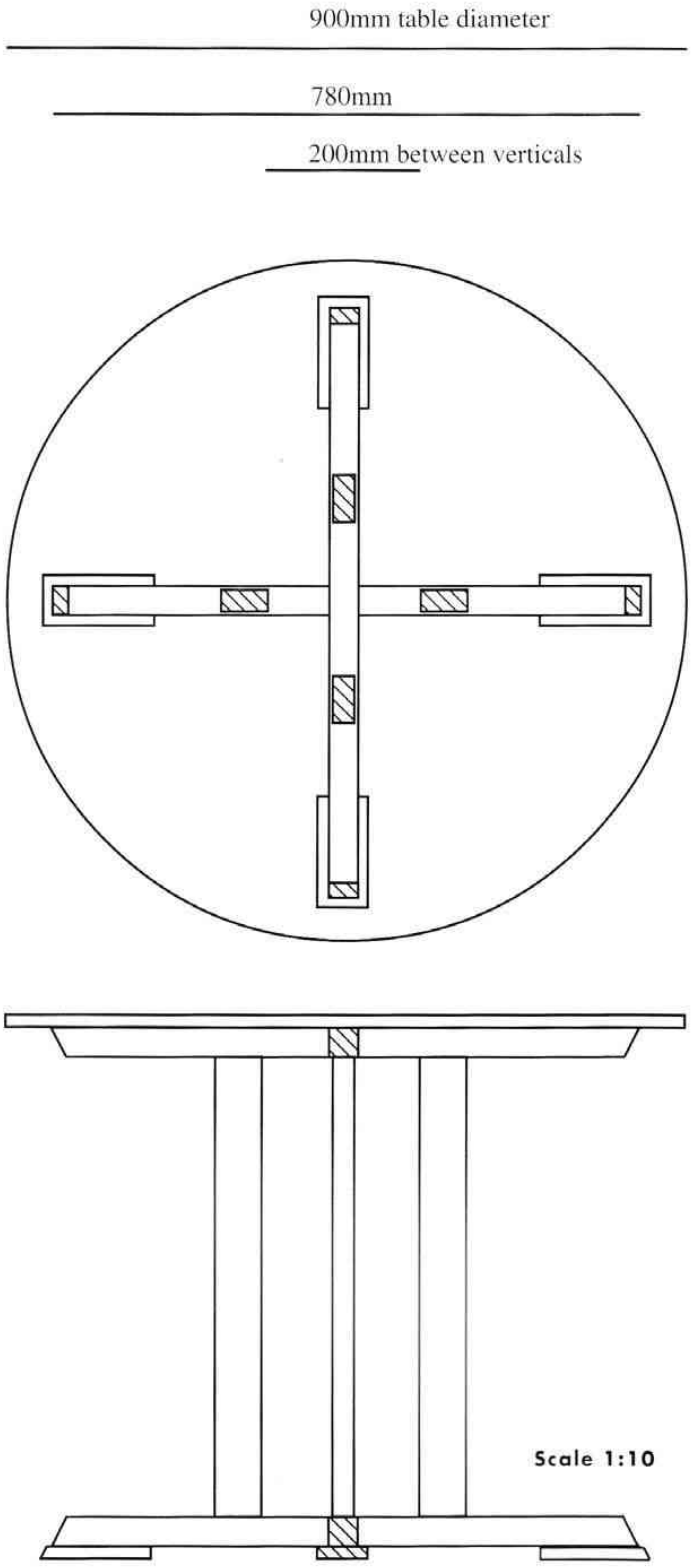
The pine furniture industry has always attempted to use standard sized timber sections for simple constructions. In fact the basis of this design is what I would call 'generic pine style'. Compared to pine, section sizes for hardwood can theoretically be reduced without any lessening of strength.

Construction

The table base is made up of two 'crosses', connected by four verticals. The upper cross supports the table top and there are feet (for decoration and stability) under the lower cross. Standard timber section sizes in this case are 42mm x 42mm for the crosses and 65mm x 32mm for the verticals.

There are limitations with this design in that a certain amount of twist or flex occurs in the verticals and unfortunately it is hard to triangulate the frame to correct this. It's not advisable to go over 900mm in table diameter, an 800mm diameter would be better.

All up the table frame timber should cost around $45, whilst the cost of the timber for the top will vary depending



Cutting List

Crosses
42 x 42mm, 4 at 780mm long (28° cut on ends)

Verticals
65 x 32mm, 4 at 650mm long if mortising; 4 at 610mm if dowelling

Top
900mm diameter x 19mm thick, glue up panel around
920mm x 920mm

Feet
70 x 19mm, 4 at 150mm long (28° cut on ends), use offcuts from top panel

on what you use. I used King Billy Pine simply because I had it in the rack, but expect to pay anywhere between $60-100 for dressed hardwood in wider boards.

Base

First cut the four pieces of 42 x 42mm timber to length, when joined these will be the upper and lower crosses. I made the half lap joint by marking out the pieces of wood and cutting them on the sliding table saw bench. I set the saw to half the thickness and made multiple cuts, cleaning up the joint with a chisel after, all the while checking for a tight fit. Because there are only two joints it may have been quicker to firstly make saw cuts to define the shoulders and then chop out the waste with a chisel.

I then cut the angle on the ends at 28° (also on the saw bench) and then drilled a hole in the middle of one piece to accept a screw. The four vertical pieces of wood meet the crosses preferably via mortise and tenons, or you can use dowels. The mortise was marked out, some waste drilled out on the drill press and a chisel used to cut 27mm deep. The tenon was then cut 25mm long (the extra 2mm is for clearance)—the tenons were also cut on the sawbench.

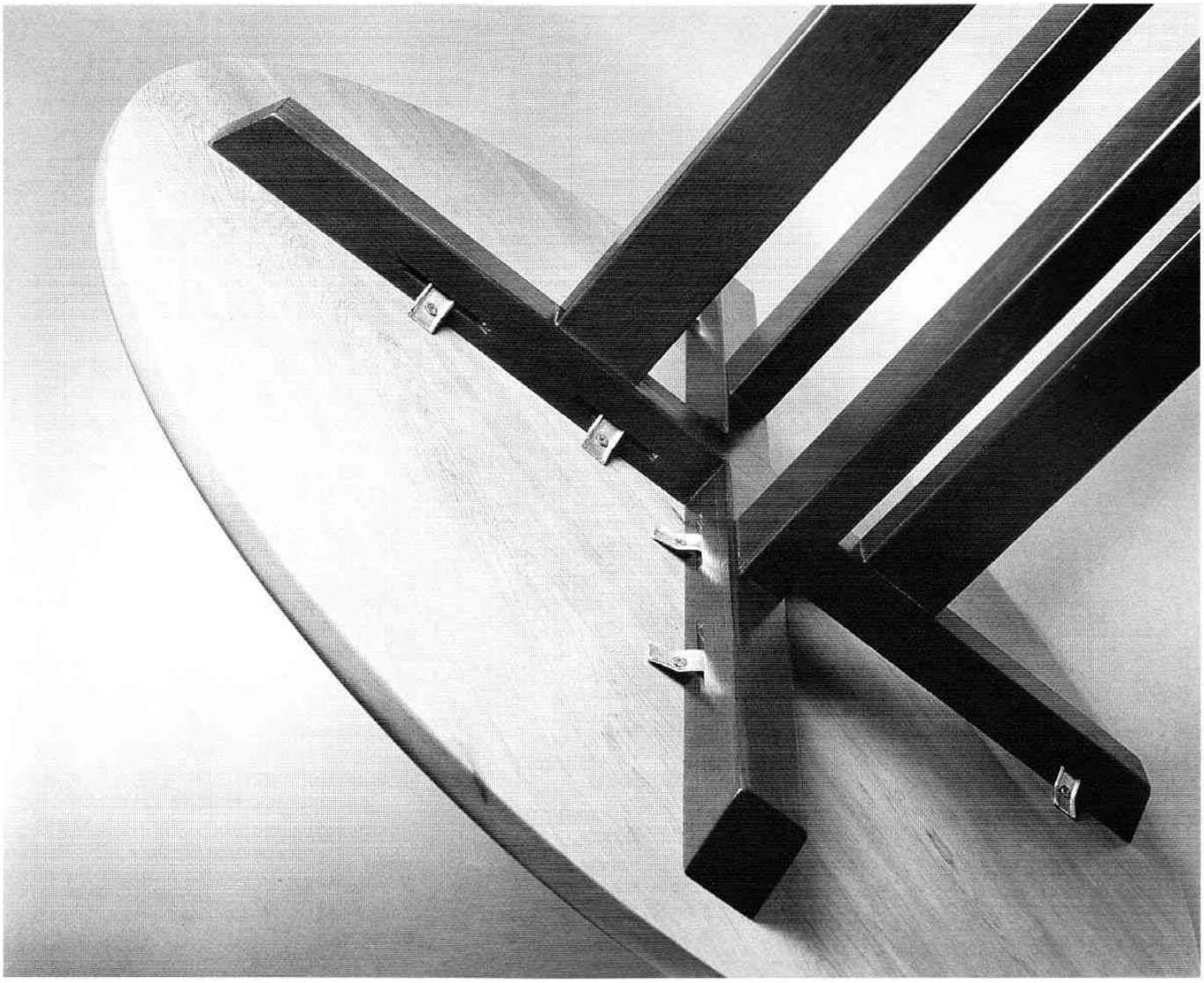
If dowelling the base use 11-12mm diameter dowels. All components were sanded and the crosses were joined with glue and a screw inserted to clamp it. After the glue has dried all the corners on the crosses and verticals were radiused with a small rounding over bit mounted in the router to soften the look of the edges.

The crosses and verticals were next assembled and sash cramped together. If everything has been accurately cut and jointed the glue up should be straightforward. Check for square and make any necessary adjustments. Once the glue is dry remove clamps and clean up the table frame.

The Top

This is cut from a panel around 920 x 920mm. I had 300 x 25mm timber on hand which made the jointing procedure simpler as there were only two joints to be made. Another option would be to use five boards 190mm wide.

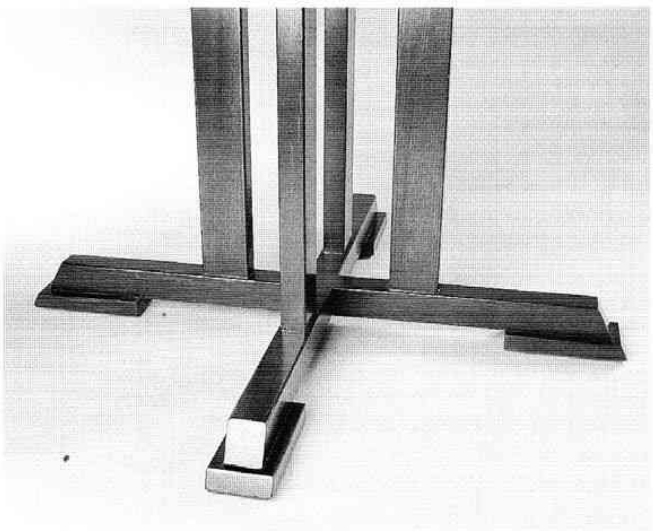
I biscuit joined the boards—this



simplifies glue-up and aligns the boards neatly which in turn reduces sanding. The table top was glued up, left to dry, lightly sanded and then cut to its circular shape. Someone stole my jig-saw a while ago, so I used the router with a straight bit to perform this operation.

The beauty of the router method is that the resulting circle is perfectly round and this makes a great difference to the final look. I securely attached a length of 9mm thick MDF to the base of my router. A large hole was first cut where the router cutter protrudes. A nail is driven through the MDF at a distance from the inside edge of the cutter. This distance is half the diameter of the required circle, in this case 450mm.

Drive the nail into the centre of the panel, plunge down the router and make three passes around the circle, taking progressively deeper cuts each pass and *voila*, it is done. I sanded the top and rounded over the top edge, again using the router. I used steel table clips and 25mm screws to attach the top to the base. These clips are available from furnituremaking suppliers. The clips fit to a groove which I cut with the biscuit joiner. The clips should be evenly spaced around the top. I also attached two small angle blocks on the upper cross.



The Feet

The feet (70 x 19mm) were cut from the four offcuts from the table top circle. I cut a 28° angle on the outside edge only. The feet were sanded and screwed to the underside of the lower cross.

Polishing

In this case the base assembly was stained a red/brown whilst the top was sealed with shellac. Everything then received three coats of nitro-cellulose lacquer.

By Philip Ashley

CAN YOU CUT A STRAIGHT LINE?

Even if the saw you own is a top of the line brand you still need to make sure it cuts straight and true. Philip Ashley shows how to get the optimum performance from your sawing machines.

Most modern sawing machines are easy to set up, and cut wood and sheet materials very effectively. After a while however, their moveable parts may need adjustment to keep the quality of your work on track. There are steps you can take to maintain these machines and keep them cutting straight and true.

Crosscut Saws

Crosscut saws are designed to cut across the grain. The most common type is the radial [illegible] machine with a cantilever arm supported by a vertical steel column. The travelling saw carriage moves back and forth on the arm, cutting the wood which is supported by a table. A similar style of machine is the pendulum saw, used mainly in sawmills.

The nature of the wood to be cut will to some extent determine the correct operating procedure. Wet, bowed, thick or dressed wood requires different cutting techniques. Wet timber may cause the [illegible] to grab, and the saw should be drawn through the wood carefully. Any resin build-up on the sawblade can be removed with a 50/50 mixture of light oil and kerosene.

Bowed timber must be sawn so that at the point where it is being cut, the material rests against the rear fence and the table. This way the blade will not grab the wood when it is midway through it. Dressed timber should be cut with the planed surface and edge against the table and rear fences. Even cutting wood that looks uniform can cause problems as, due to internal stresses, it is difficult to predict what the wood will do after it has been sawn.

Crosscut saws are usually of fairly light duty construction. Even so-called 'professional' machines tend to move around a bit because the moving crosscut carriage is mounted on a very long overhead slideway. When the blade is pulled out to its fullest extent, any sideways pressure by the operator is usually enough to move the overhead carriage left or right a millimetre or more. This may loosen the locking device (normally a clamping sleeve on the rear column) and the machine will no longer cut square.

To counteract this tendency, you should always stand with your shoulder in line with the cut, and return the saw behind the fence immediately after each cut. This will eliminate much of the lateral movement of these machines.

When operating a crosscut machine, avoid pulling the blade out too far. A thin offcut can fall back into the line of the sawcut and the returning blade will catch it, flicking it up into the guard where it usually explodes. This damages the blade and can move the machine out of square. You can help prevent this by keeping the rear fences set as close to the side of the blade as possible.

For cutting up to 45° in either direction, use a false table to raise the sawblade above the rear metal fence. With this table in place, a variety of compound angles can be cut. Be aware that the

longer the cut and the blunter the tool, the more chance of some lateral movement.

Although some crosscut machinery manuals claim their machines may be used for ripping or other operations I feel this practice can be dangerous. Any operation other than crosscutting requires the fitting of additional guards, fences and possibly a riving knife. The overhead carriage has to be positioned where the material can be fed along the crosscut table. This places the weight of the motor and the tool/guard assembly way out on the slideway, and to date I have not seen a machine which is rigid enough with the carriage in this position.

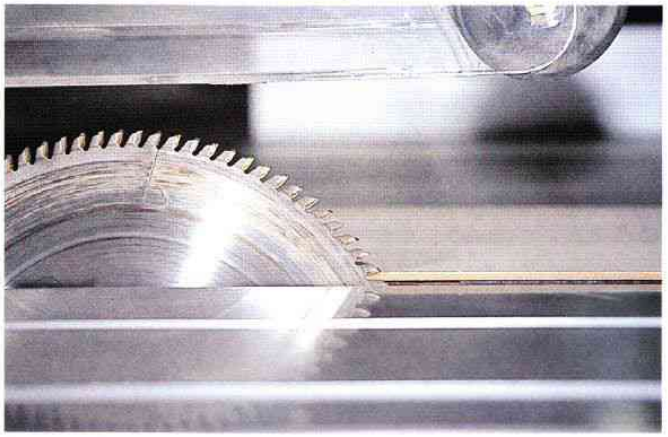
Tablesaws

Table, or ripsaws are designed to cut along the grain. A simple tablesaw will get you by for rough cutting, but a sliding table machine is preferable for finishing cuts. Always use the machine with a properly adjusted riving knife and top guard. This prevents the wood from closing up on the back of the sawblade and being thrown up and back at you. Some timbers are prone to this. If the kerf starts closing up on you, keep holding the wood firmly onto the table, and pull it slowly back towards you. This will re-cut the kerf, and you should now be able to feed it through. On a really bad grab, hit the stop button with your foot, but don't let go of the wood under any circumstances. Standing to the left of the line of the cut is a good safety measure.

Although it may be slightly safer to set the blade as high as possible, the best setting for a quality cut is to have the blade so the gullets are just clearing the top of the wood. This creates some breathing space for the sawblade, and also gives you the most amount of teeth in the material. If the blade is kept sharp it should cause you no harm.

The fence position is pretty important when ripping solid wood. If possible, try to have the end of the fence in line with the bottom of the gullets. When you raise or lower the sawblade, don't forget to re-adjust the fence. The best fence is one with a curve at the rear that matches the curve of the blade.

Setting the rip fence to the saw gullet for solid timber cutting.



The blade here is too high—at times there are no teeth in the wood which will tend to wander as a result. Lowering the blade will reduce breakout and put at least one tooth into the wood. A blade with more teeth would also help.

When you use this machine, start the cut off smoothly and don't force the blade. Keep the wood flat on the table where it is being cut, or you may find the wood starts to chatter—a jerky feed will result in a poor finish. Always use a pushstick for removing waste wood, or when ripping thin or short pieces. Never push your hands past the front of the blade. If you have warped timber to rip, crosscut it into the shortest usable pieces first for a better result.

Woodworkers sometimes work with green wood. Even though there is a lot of water present, the friction caused by the blade rubbing on the flexing wood can generate an enormous amount of heat, which will damage the blade. The solution is to get a blade with 'strobe' teeth. These are brazed onto the sides of the saw, and actually re-cut the wood as the blade passes through it. For multiple cuts you will find that the time it takes to set up a couple of spring pressures is well worthwhile, especially if you are working on your own.

Sliding Tablesaws

The sliding table machine has evolved mainly due to the advent of manufactured panel materials. Before you use yours for the first time, check that the 90° and 45° stops are correct, and always check fences are straight and square before you start any job.

Cutting Panels

When cutting panels, the crosscut fence should be set in front of the panel. This will give you the largest possible area to work with. A good machine will have a lock that can be engaged when the table is drawn completely back, allowing you to move your panels around without nicking them with the sawblade. Panels are usually large and cumbersome, so get help if you can.

For length cutting, set the rip fence so that the trailing edge lines up with the centre of the sawblade. Trim the edge, and then cut using the rip fence as a guide only. The bulk of the board should always rest on the sliding table. When you are doing the last cut, square off the end of the strip and rotate the board 180°, cutting the strip off the crosscut stop, with the strip on the sliding table. When width cutting panels, set the rip fence to the front of the saw so that the narrower strips clear the fence immediately after they are cut.

Plan your cutting carefully; a lot of board can be wasted by indiscrimate cutting, and most often you never use the pieces you save for later. Cut with the face of the work facing upwards, and

SAWING FAULTS AND REMEDIES

PROBLEM	POSSIBLE CAUSE	REMEDY
Blade slows when cutting	Drive belts too loose	Tighten belts
	Dull saw blade	Sharpen blade
	Resin build-up on the teeth	Clean the blade
	Operator forcing the cut	Slow down the rate of feed
	Wrong blade is being used	Consult your supplier for the correct sawblade
Blade wobbles	Blade has lost tension	Have the blade serviced
	Locknut is loose	Tighten locknut
	Overheating	Sharpen the blade
	Blade running at the wrong speed	Change the saw speed
Saw jamming in the wood	Incorrect crosscutting of bowed wood	Place round side onto table or against fence
Saw not cutting square	Fence out of square (panel saw)	Set fence square to the blade
	Sawblade not square to crosscut fence	Set sawblade square to crosscut fence
	Sawdust build-up between material & fence	Clean away sawdust
	Saw not square to the table (panel saw)	Set saw square to table
Wood kicks back at operator	Wood closing on sawblade when cutting	Check thickness of riving knife and change
	Insufficient set on teeth (plate sawblade)	Set the teeth
	Timber is not held firmly	Hold the timber firmly
	Dull sawblade	Sharpen the blade
	Cutting badly warped timber	Crosscut the timber into shorter lengths
	Riving knife incorrectly set	Set the riving knife closer to the blade (12mm)
Breakout on work underside	Cutting angle of the blade incorrect	Adjust the blade height
	Table insert worn away	Replace the table insert
Sawblade or wood burning	Resin built-up on blade	Clean the blade
	Dull sawblade	Sharpen the blade
	Wrong blade	Change the blade
	Insufficient set on teeth (plate sawblade)	Set the blade
Material wanders in the cut	Not enough teeth 'in the cut'	Install a blade with more teeth
		Lower the blade in the cut
	Wrong blade	Change blade
	Plate saw teeth incorrectly set	Set the teeth
Wood binds on rear of blade	Fence not parallel with sawblade	Reset the fence parallel to the blade

use a scoring saw for laminated sheets.

Squaring the crosscut fence is best done by getting a piece of particleboard at least 400mm square and making a cut on one edge of the crosscut fence. Turn the newly cut edge anti-clockwise and place it against the crosscut fence, cutting off another small piece of say 10mm. Repeat this until all four sides have been cut, then rotate the board once more and cut off another 5-10mm piece. Take this offcut and break the piece in half. Lay the two pieces on the saw table so that the leading and trailing ends of the piece are together. They should both be the same thickness, indicating a square cut. If they are not, the crosscut fence will need to be adjusted.

Cutting Solid Wood

Always crosscut solid wood with the crosscut fence behind the timber for good support. When using the rip fence as a stop, set it in line with the gullets of the sawblade to prevent the wood from being jammed between the saw and the fence.

If you have to cut bowed wood, remember that whatever way you feed the timber, it is going to rub against one side of the blade. If you have to cut the piece and you cannot cut it to a shorter length first to take out some of the bow, take great care. Have the rip fence set only to the gullet depth at the height of the wood, and feed the piece with the bow away from the fence. This way, the wood will always be against the fence at the point of the cut. What is important on any sawing operation is to have control of the piece you are cutting from.

Another point worth considering is the height of the sawblade. As the blade rotates and cuts through the wood, the cutting angle of the teeth changes by up to 30°. Depending on the height

of the sawblade as it cuts, the bottom surface of the wood may be damaged by chipping. A simple solution is to raise or lower the sawblade until it gives you the best result. There does not appear to be any rhyme or reason here, but changing the height will very often fix the problem.

To get the best cut you should have at least one tooth in the wood at all times. Thinner material such as plywood will require a blade with many teeth. If the tooth pitch is too coarse, however, the material will wander as it is being cut.

General Maintenance

All moving parts need to be lubricated, and you should refer to your machine manual for guidance. Modern machines require little maintenance, but you should keep them clean, and avoid any build-up of dust and wood chips, which can be compacted between moving parts. This is especially important on sliding table machines. Some saws have an open frame design and most of the dust simply falls to the floor. Slideways can be cleaned with kerosene to remove dust build-up. Bolting the machine to the floor if you can is a good idea. Take some time to get the machine level. A level surface to start with is always a good move. It may not sound important, but you should take the time to reproduce the ideal operating environment.

Start out with a good machine, keep it well maintained, use it properly and your subsequent machining and assembly operations will be much easier and more successful. Lastly, remember, any sawing machine can produce quite a nasty accident, so take the time to operate your machine safely.

Philip Ashley is a lecturer in furniture manufacturing at Holmesglen TAFE.
Photos: Stephen Nathan

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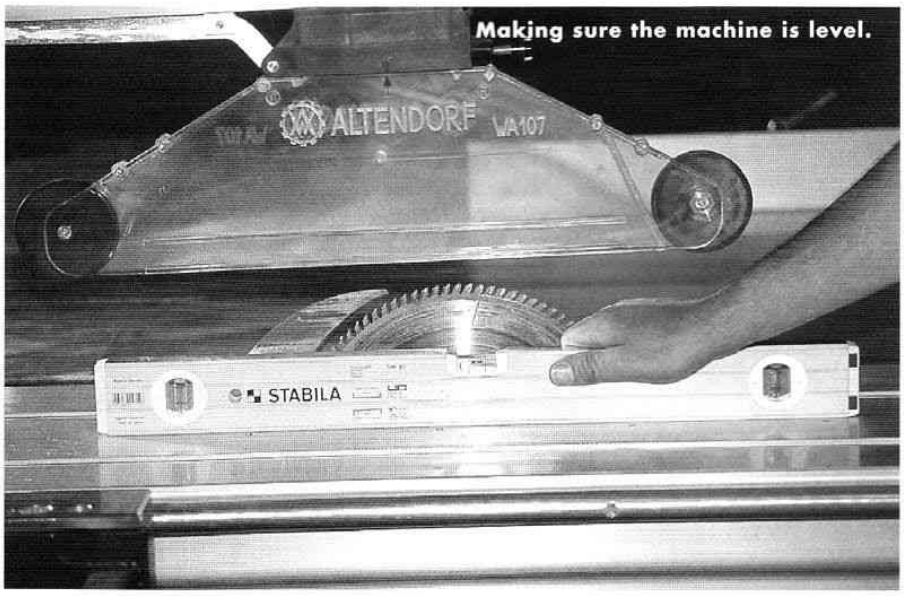
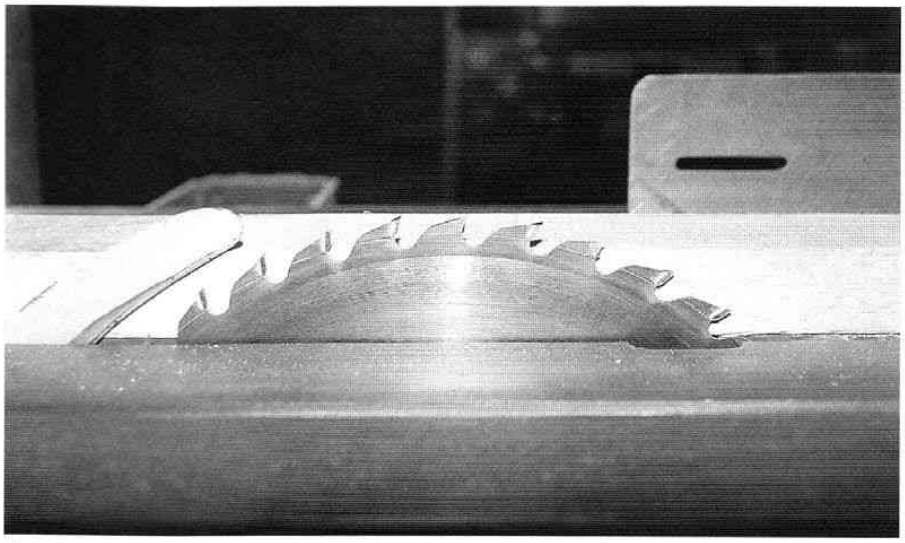
A-Class Woodworking (02) 4577 3685
Advantech 1800 355 635
Bunnings Warehouses, xsee p.3
Carba-Tec 1 800 658 111
Craftmaster, see p.39
Hare & Forbes see p. 9
Linbide Tools, see p.71
MRH Woodworking Centre (07) 3283 1558
MIK International (08) 8333 2977
Power Tool Specialists (02) 6280 4966
Southern Woodturning Supplies (02) 6280 0620
Wood Works Book & Tool Co (02) 9807 7244
T.U.I Machinery 0011 886 2 7522111, fax 0015 886 2 7413046, fax (02) 9522 0162
Woodman Group see p. 10



Making sure the machine is level.


General shot of crosscut saw showing correct hand position.


The setting of the riving knife is shown here. The sawblade height is set to where the gullets clear the tip of the wood—there are almost three teeth in the cut. The approach angle of the teeth is also more towards the operator, which generally gives a smoother finish with less breakout. On this machine, the rip fence does not have a curved trailing edge, making it difficult, if not impossible, to set it to the depth of the gullets.

By Dinah Hall

RECYCLED TIMBER — ANOTHER LIFE

Cabinet of recycled Baltic timber made by Eureka Furniture, Queensland.

Timber is making the ultimate comeback. Salvaged, re-machined, re-cut, re-worked and born again, recycled timber is being made into furniture which is increasingly appreciated by the buying public.

Where once, not too long ago, old buildings were imploded, bulldozed, burnt or buried, they are now considered veritable goldmines. Tender loving care is taken to recover any useful timbers from the wreckage. The decrease in world timber supplies is just one of the reasons for recycling old timbers. A love of the huge seasoned timbers which were used in old wharves, bridges and warehouses, and the stories they tell, is another.

And while architects have known for some time of the splendours of recycled timbers, there are furniture makers who have made their name with products which incorporate the old. More often than not, timbers that have become rare from over demand can more easily be found as recycled timbers.

Exactly how big the trade in recycled timber is, is unknown. The Furnishing Industry Association of Australia does not collect data on this and suggest the recycled timber furniture trade is nothing more than a boutique business. Yet companies such as Sequel Furniture, Eureka and Solid Grain are employing all the character of recycled timber in the furniture that has nothing less than mass appeal.

Apart from the designer/makers who turn out one-offs there are plenty of smaller workshops custom-making furniture and enjoying a consistent turnover in recycled timber furniture. All say demand is expanding.

The market for the 'recycled look' is also strong and big names like Harvey Norman and Freedom Furniture are responding to this demand. Both of these big chains offer a range of recycled and recycled-look furniture.

The rewards are not insignificant. Melbourne-based company, Nicholas Dattner & Co, who also turn out recycled timber stock, recently sold a table of pre-loved redgum for $22,000.

Sources of Good Wood

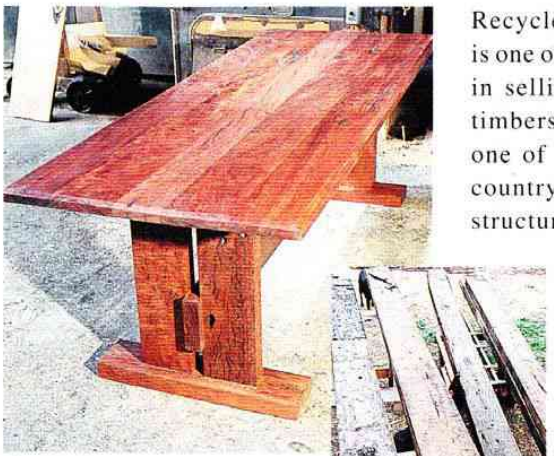
The Recycling and Resources Recovery Council estimated in 1994 that wood waste accounted for more than 10% of the total commercial and industrial waste stream—all potentially recoverable. Yet sourcing timbers is perhaps the biggest drawback for some manufacturers. Consistency of supply is a big hurdle for operators who have their machinery set up to cater for certain stock. Others find their supplies simply dry up. For instance Gaylard furniture, once a well established supplier of recycled timber furniture, no longer deal in it at all. John and Fiona Robbins of Settler Furniture once employed a large percentage of recycled Baltic pine in their furniture but are reducing it as supply lessens, while increasingly using recycled eucalypt. Meanwhile in Queensland, Eureka have secured a good source of imported recycled Baltic but foresee an end to the supply of recycled hoop.

Many of the smaller manufacturers simply buy entire lots of whatever is on offer—AY Woodworks currently have approximately 80 tonnes of recycled timber waiting to be converted into custom made furniture and fittings. Other furniture makers buy their timber ready to roll.

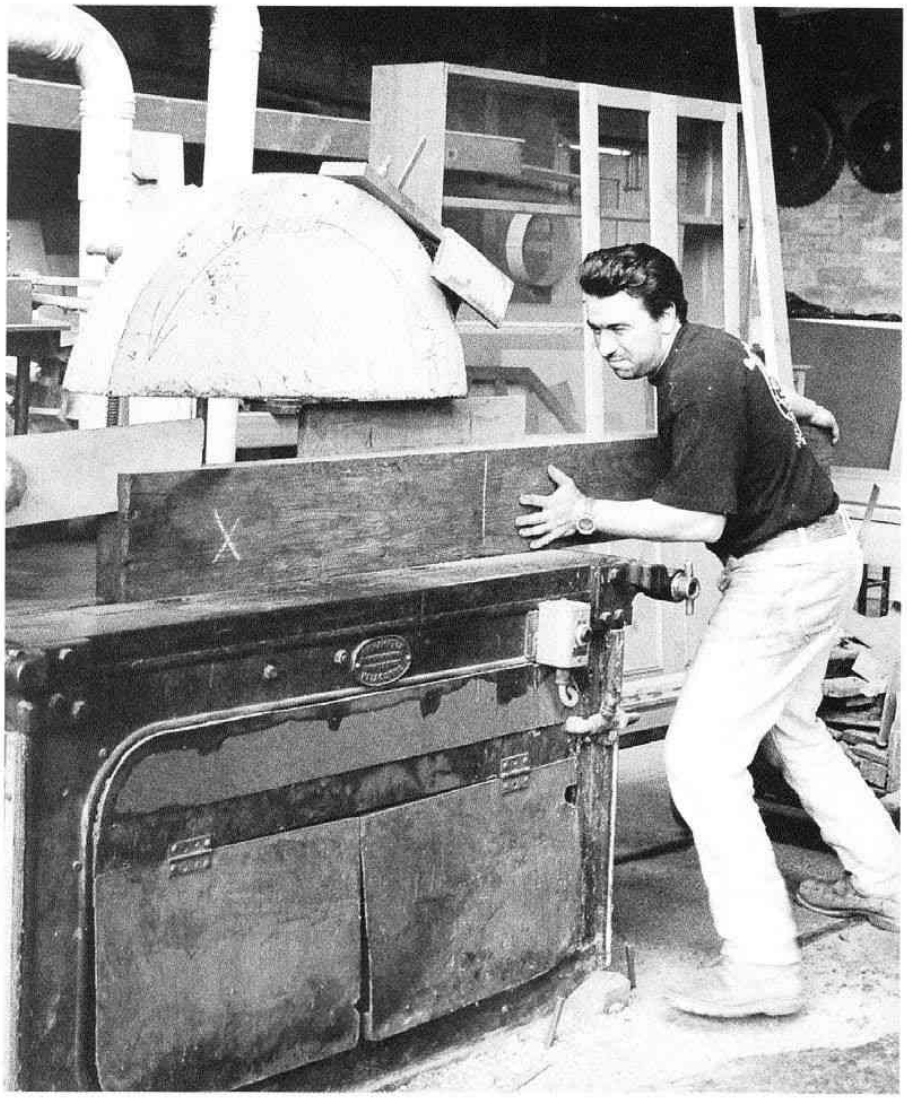
There are many demolition yards dealing in recycled timbers largely for structural and architectural use. Many have recognised the demand for furniture timbers and are re-sawing and selling square-dressed timbers. Australian Recycled Timbers (Preston, Victoria) is one of the biggest operators involved in selling recycled timber. Sourcing timbers is a full-time occupation for one of the partners as he travels the country in search of buildings and structures whose number is finally up. Around 500 cubic metres of timber is moved per annum and monthly turnover approaches $100,000.

The three big Albert Park stadiums, the Sydney RSL, Grace Bros Sydney, Darling Harbour buildings and the old Essendon football club grandstand, are among the addresses that this company has recycled into floorboards.

A series of stools mass-produced from recycled jarrah (once destined to be power pole crossarms in Western Australia) and oregon (from the early 1900s Goulburn Tannery building) by Ferndale Joinery in Bundanoon, NSW.



The redgum table above was made from the beams shown right by A.Y. Woodworks in Victoria. Apart from all the tar, bolt and nail holes, the volume of usable timber was greatly reduced by the amount of gum vein and feature present.



Top: Arthur Yankoulas of A.Y. Woodworks breaks down the 9 x 9" oregon beams which were used to make all the doors, panels, capping and overheads in this recycled timber kitchen.

mouldings and furniture. 'Approximately 60% of our timbers are re-machined into flooring and panelling and 40% is sold to furniture manufacturers, both designer/makers and the bigger makers,' according to ART's John Monument.

Their main business is producing 10" or 250 mm wide floorboards from ironbark, mahogany, Sydney blue gum, messmate and jarrah, largely to fulfil architects' specifications, with the kitchen and bathroom fitters not far behind. There is also a growing demand for laminated tabletops and benchtops.

Monument agrees that promotion of natural feature grade timber has helped acceptance of recycled timber, but stresses: 'We really don't know what we've got until its been through the machines, some people want markings and other don't,' he says.

Larger Scale Manufacture

Queensland-based Eureka Furniture has an established market for recycled hoop and Baltic pine furniture. According to manager Natan Brisblatt, the Baltic pine he imports is up to 300 years old. He says his clients come to buy recycled timber because they like the 'restored antique look'. 'We try to keep all the original nail marks and any surface cracks.' He describes his motivation for using recycled timber as 'a little bit conservation, a little bit good business.'

With a factory of 20 staff supplying four outlets in Brisbane, one in Melbourne, one in Sydney and some overseas export to Japan and Taiwan, the combination sounds like a little bit of good sense. The company also buys plantation hoop and ages it, however, he stresses, old is sold as such and new is sold as new. Many manufacturers supply certification of the source of their timbers used. Some of Eureka's certified stock has come from old Brisbane landmarks such as the Coca Cola factory, Brett's Wharves and old buildings from the Mater Hospital.

Solid Grain are also establishing themselves as a recycled timber and new timber furniture supplier with four outlets in Sydney selling what is manufactured throughout the city. While much of their furniture is custom made there are some standard products in recycled timber such as home units, beds and blanket boxes. According to retailer Steve Leupuscek, their products are moving away from the popular oregon into indigenous timbers such as bulloak, beefwood, tallowwood and spotted gum.

The Smaller Manufacturer

Further south AY Woodworks (Newtown, Melbourne) is also experiencing the joys and sorrows of recycled timbers. Voula Yankoulas says it is increasingly difficult to source the quality recycled timber once to be found. Yet they were recently able to outfit a complete personal library with solid jarrah wall panelling, large bookshelves of jarrah and fireplace surrounds with what once served as roof trusses and posts.

The redgum floorboards of an old railway workshop have also been resurrected into extraordinary furniture by A.Y. The 3" thick planks for many years supported huge machinery and locomotives and were protected by canvass and tar which had to be painstakingly removed with a cold chisel.

Arthur Yankoulas says he works recycled timber for love of the character it yields.

This love is highlighted by the effort put into finishing each piece with 8-10 different grades of sanding until the fine 400 grit finish is reached before their oil and wax finish is finally applied. And what a life some of these timbers have had—AY recently pulled a 120 year old piece of oregon, 355 x 150mm x 4.0m out of a garden bed and turned it into a table.

Pickled in Rum

Bundaberg rum is the flavour behind much of the furniture coming out of Ferndale Joinery. Rum vats of American White Oak and oregon have provided the timbers for blanket boxes, kitchen dressers, tabletops and cupboards.

'The timber is literally pickled for 100 years giving it a range of colours from straw through to the green and black streaks,' says Cliff Lander. Their products include stools made from jarrah purchased from the West Australian electricity commission which in a previous life performed the dangerous task of separating high voltage wires as the cross arms on power poles.

Gouldburn Tannery also provided oregon for their furniture. Delivered in massive lots with beams 10-15 metres long, 300 x 250mm, charred black by fire, the timber was reincarnated into tables. Lander and partner, Sandy Lander, only use recycled timbers: 'Because we are conservationists and our customers are too. We don't support the felling of rainforests for timber. We like using nice timbers and recycled timber is always available.'

The 'Demo' Yards

At demolition yards are the timbers that generally can't be bought anywhere else. This is where the big lengths and widths are, the ones that can't be bought as new timbers because they just don't cut them that big any more. This is the home of the aged and the rare. For instance, Redcliffe Demolitions, Qld have 9 metre lengths of kwila; and recently moved 4000 metres of 100 year old beech decking recovered from the German Embassy in 2.7-3m lengths. The demand for some species, such as hoop, can simply not be met—Redcliffe yards has 5500 cubic metres of hoop on back order. Recycled red cedar is always in demand and price depends on size. The chunky pieces (75 x 20mm) which turners favour sell for around $1.50 per metre. Mixed hardwood, such as jarrah, sassafras and spotted gum (200 x 250mm) sell for $5-6.

Once the load is dropped off it is de-nailed, graded for structural strength, stacked/packed and stored. However, some yards simply cut off the nails, so beware, the damage to your machinery will cost you far more than you have to gain.

It could be a raised green consciousness or simply the enjoyment of sitting in a chair knowing that it once formed part of a wharf or a grandstand—eith way there is increasing consumer demand for recycled timber products. Whatever the reason, the end product offers an unsurpassed beauty in aged timber, if not an ecological statement of support.

Above: A pair of garden chairs made from recycled hardwood fence posts and left, a blanket chest made from oregon salvaged from one of four rum vats from a Bundaberg distillery. All made by Ferndale Joinery, NSW.

Below: Near the Elwood foreshore stands a bench made from recycled ironbark and messmate by Native Wood Products of Melbourne.

Please note pages 28-30 are not included in this pdf and page numbering has accordingly altered from the printed original.

By Rod Nathan

MAKING CYLINDERS

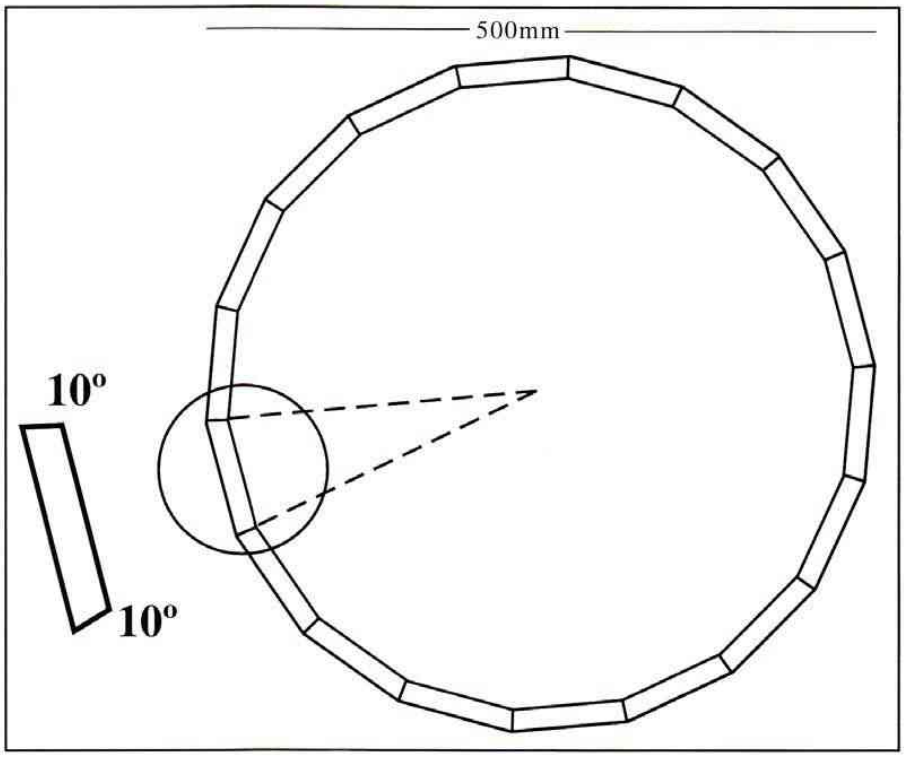
Photo: Clive Buxton

Cylinders adapt to a variety of constructions such as chests, boxes, columns, plinths. A simple technique is the starting point...

It is understandably easy to limit your work to the straight lines and square joins which woodworking machines and tools are engineered to produce. For years I avoided making any sort of cylindrical shape, purely out of fear of all those angled joins.

Eventually I bit the bullet and made a series of bass drums, which start out as nothing more than wooden cylinders. While my interest lay in making drums you may want to make architectural columns, table supports, pedestals, plinths, circular chests, round boxes or sculptural forms.

The starting point for all these is the same. Determine the size cylinder you want, work out the number of pieces and width of timber to build the wall, machine the correct angle on all edges, glue up and then plane and sand the outside round.



My first attempt went very well; but the next one was a disaster, the angle was wrong and the whole gluing up process became a shambles of glue, mess and anger. The next effort fared no better, nor did the one after. Eventually the source of the problem was traced to the school compass used to set the angle on the bevel gauge, which was in turn used to set the angle on the planer fence—obviously I should have known better. To begin with, the angle must be set as simply and as accurately as possible.

Sourcing an adjustable angle gauge was not so easy; the best I could find was a light steel one from a woodwork tool supplier for $25. Surprisingly this has worked very well, but I dare say an engineering supplier may have gauges which offer more precision.

Method

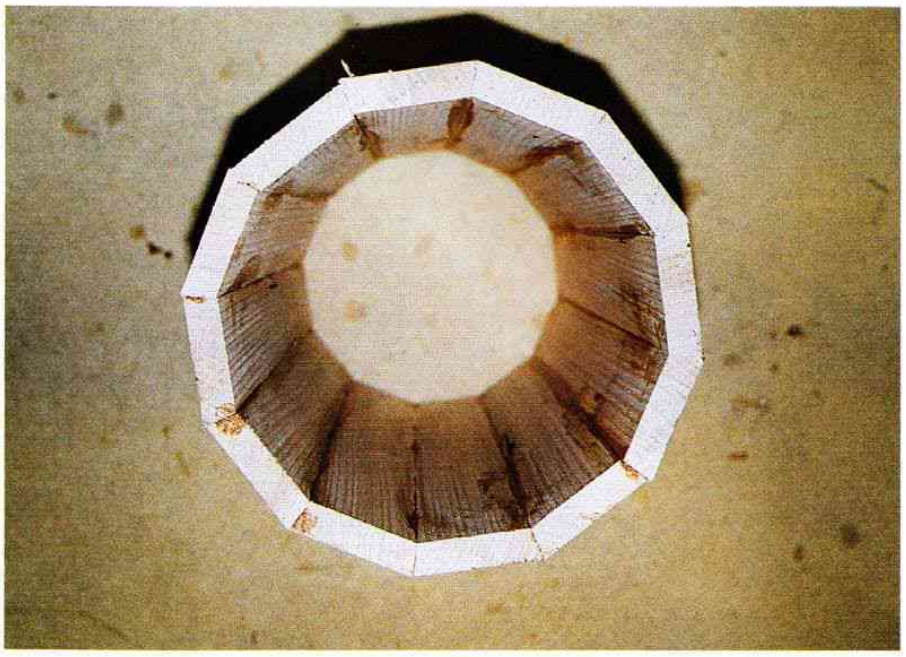
Begin with the diameter of the cylinder required and find the circumference, this is calculated as circumference = 3.143 x diameter.

Divide the circumference by the number of boards you will use in order to establish their width. (Or if you wish, divide the circumference by the width of board to establish the number of boards required.) The narrower the boards the sweeter will be the sweep of the curve, however more boards create more joins.

There are 360° in a circle and it helps enormously if the angle you work with is a whole number—12.85° for instance, is a ridiculous angle for woodworking, as I found out the hard way. If, for example, you use 10 boards you will have in total 20 angles (each board has two edges); 360 divided by 20 gives a nice rounded 18°. As a guide: 10 boards use 18°, 12 boards use 15°, 15 boards use 12° and 18 boards use 10°.

The Process

Following the process through, you may wish to make a cylinder 500mm diameter and plan to use 18 boards to build the wall. The circumference will be 500 x 3.143 which equals 1571.5mm. Divide 1571.5 by 18 to find how wide each board needs to be, in this case 87.3mm with a working angle of 10°.



The view from above illustrates a cylinder which has been assembled from twelve boards cut to 15° angles.

Commercial belt clamps are available, however twisting rope around with the aid of small sections of timber worked effectively.

Next, machine all the boards to 87.3mm width and then set the saw to 10°. Rip the angles but leave a very tiny flat section on the board. By leaving this tiny flat you can maintain the width of the board while ripping and this gives an accurate edge to press against the saw fence.

Set the planer fence to 10° and carefully plane both edges of each board. The easiest method for glue-up I found was to get an assistant and together apply glue and vertically build the wall rubbing the joins together as you build.

Once the circle is complete apply the clamps. There are very nice commercially made belt clamps available, but, as you can see in the photo above, I used wood and rope which is just as effective. By twisting the wood around and around enormous pressure is created

I left the cylinders to dry overnight and then used an electric plane to form the shape followed by a belt sander. Provided you get the angle correct, nothing can really go wrong. Gaining confidence with angled joins can open up a whole new range of possibilities.

SHARPENING CENTRE.
This wet/dry sharpening centre has been designed to give your work shop, as well as your tools, the edge. It has a 1/5 hp motor, and a 5", 120 grit dry wheel, with an 8" 1000 grit wet wheel. It also comes with a tool rest, water tank, and eye shield.
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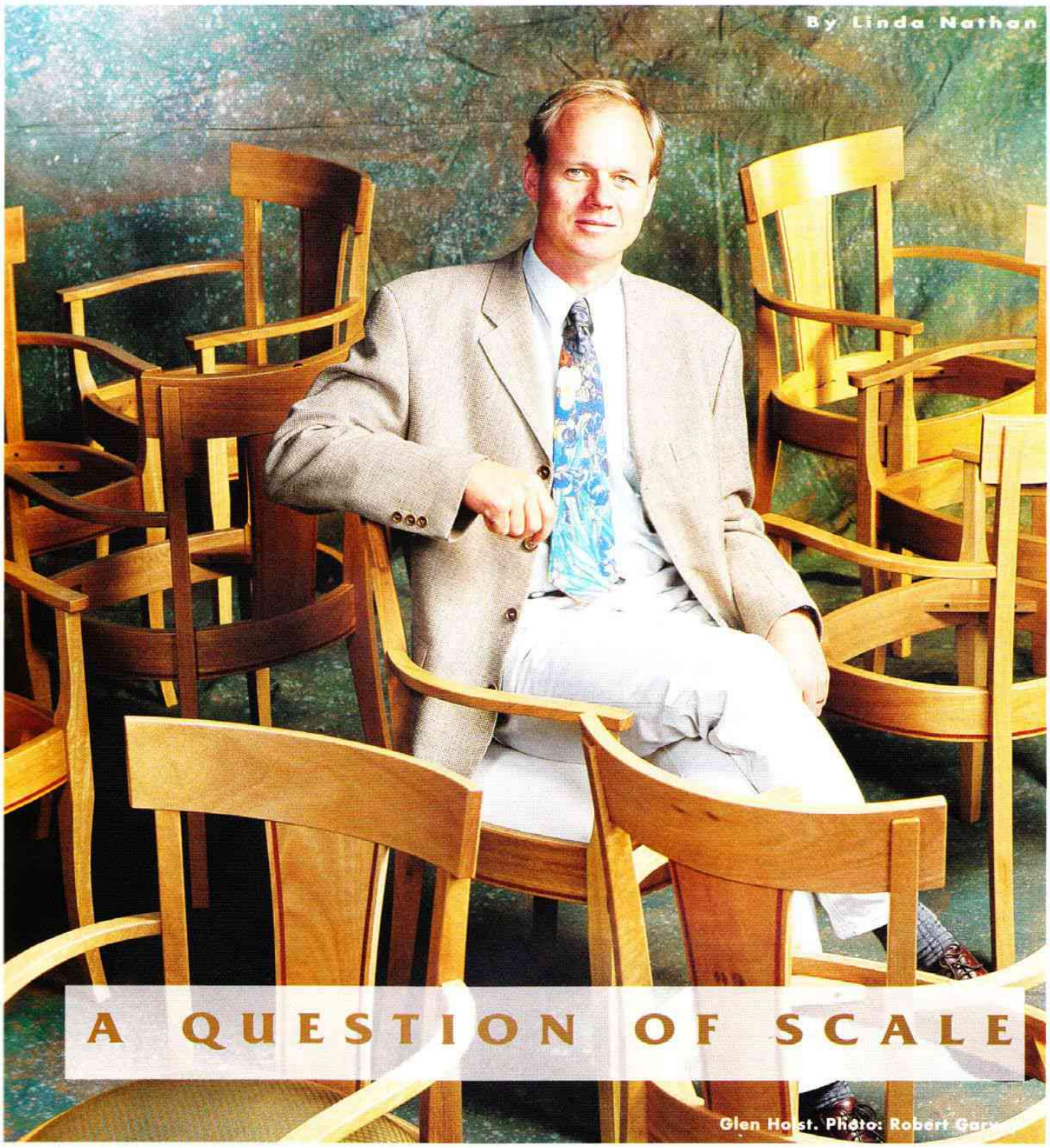
By Linda Nathan

A QUESTION OF SCALE



Glen Holst. Photo: Robert Gar

Within the confines of a relatively short 14-year-old career as a furniture maker, and despite the small size of his company, Glen Holst has learnt to think a lot bigger than most of his peers.

The scale of his work was recently apparent to the thousands of people who visited Perth's Central Park building foyer to view the biennial *Wesfarmers Fine Wood Awards* exhibition. Holst's magnificent jarrah dining suite which, fully extended seats 22, was an award winner as well as an attention grabber. The precision of workmanship, attention to detail let alone the sheer beauty of the materials used were all the more apparent for the size of the suite.

As every furniture manufacturer regardless of the size of his or her operation knows, designing and making the furniture is only part of the commercial equation. 'Success' very often relies on the ability of a company or an individual to promote their own work and make the all-important conversion of furniture into dollars. Maintaining a level of sales which is not dependant on firesale prices is also part of having long-term career prospects.

The smaller the business the larger the need for a few people to wear what at times seems to be an ever-increasing number of hats. While some outsource the marketing and selling side of their business to retailers and gallery owners, Glen Holst takes full responsibility for the selling of his

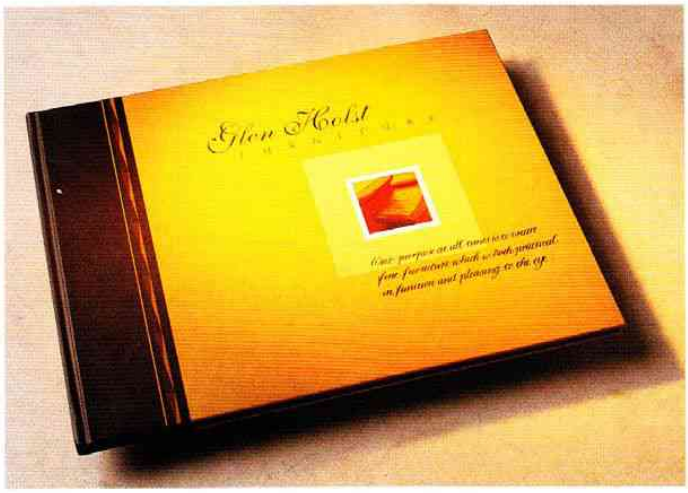
work: 'Our business is the design, manufacture and *selling* of furniture and we clearly separate the factory cost of a piece of furniture from the cost to retail it. I don't deal with any galleries, we sell all our work direct. When you consign, you give the marketing energy to someone else, and they're never going to do it the way you would. It's not so much they don't have a level of commitment, they just don't have the passion you do.'

Finding large scale work and corporate commissions of this nature is generally a word-of-mouth process, however Holst has recently made a heavy investment in a new marketing initiative. At the end of 1997 he published a coffee table style book self-descriptively entitled *Glen Holst Furniture*. A 'limited edition' of 500 were produced—each to be signed, numbered and inscribed with the name of its recipient.

The inspiration for the book came as a by-product of the Noel Hearne Fellowship which Holst was awarded in 1996. He travelled to Britain to further his research into the preparation and use of 3mm thick veneers. During his visit he met with furniture makers such as David Linley, John Makepeace and Alan Peters, and was able to observe at first hand the marketing style of these and other well-known furniture makers. All seemed to have top quality, expertly produced promotional material, though, Holst admits, perhaps not quite to the standard of his book.

The current European trend, as evinced by one of the speakers at the Australia Council's recent Arts Publishing seminar in Brisbane, is for visual artists to produce monographs about their work. A high level of presentation is not an unusual professional standard for artists in other countries. There is some funding available now in Australia for the production of material of this kind.

For a small scale Australian furniture maker to have even a colour brochure is pretty much an exception—most furniture makers resort to photo albums and display folders to present their collections of snap photos. Holst relates the European phenomena directly to the sorts of prices artists and makers demand and receive for their work, in some cases almost double that of their Australian counterparts.



Glen Holst's self-published promotional book.

Despite paying what may amount to lip service to notions of professionalism, the idea of self promotion is still regarded by many as un-Australian. We still cut our tall poppies down, and privately regard with suspicion those who put themselves forward. While other businesses are permitted to advertise and hyperbolise the virtues of their goods and services *ad nauseum*, the artist/craftsperson is expected to wear a mantle of humility and await praise from the mouths of others.

Holst's book contains images of his work and a statement of his work philosophy; more importantly perhaps, it symbolises the total package which he offers. If you go to a maker who presents you with a beautifully designed and printed, gold bound, full colour, 'limited edition' book as his calling card, you will probably feel confident in his ability to deliver!

Glen Holst is, in other words, a custom maker *par excellence*. His efforts centre on convincing the client that, at no stage of the way, will their needs and aspirations be ignored. Custom making is, after all, making what the client wants, whether the client starts off knowing what he wants or not. Of course you will definitely pay for what you get, but satisfaction is implied and guaranteed at every step of the way.

When you commission Glen Holst, your piece will be, in his words 'a creative collaboration', in fact a 'richly rewarding process to be shared by both craftsman and client'. Holst is not the sort of craftsperson who needs to control the whole creative show. The client's involvement is sought from the outset and, counting the many clients who have become close friends, this side of the relationship is one that he clearly relishes.

In a way it has been his desire to run a profitable business which has resulted in him pricing and positioning his work for a smaller affluent market. Holst has, unlike some, priced himself into an upper end market, rather than pricing himself out of business by trying to compete at a lower level.

Glen Holst was initially a teacher of industrial design. After relocating to West Australia's verdant south-west the transition to furniture maker was made by reducing his teaching load and gradually taking on more and more furniture work. This is how he 'stepped into furniture making, without diving off the deep end', as he describes it.

Although the learning curve was steep, success came right from the start without, at that stage, any special effort needed to market his work. Word spread amongst the local professional community and for at least two years the orders kept coming in.

At the beginning of the 90s there was a downturn in the rural economy which directly affected his sales but, more significantly, Holst found he had saturated the local market in the relatively sparsely populated area of Bridgetown.

'That was one of those really scary times', Holst explains 'our overdraft had gone to the limit, and we had no plan to get it down. Then I learnt to put in place a proper business plan. We now use an absorption costing method which was suggested to me by my accountant, who is also a business adviser. At the time I said to him

Designing the boardroom table destined for the Western Australian Constitution Centre, 4500 x 2325 x 740mm. The table was constructed in three sections as a hollow torsion box with audio-visual wiring fitted internally to each section. Made from burr jarrah, sheoak, jarrah burl on MDF substrate. Photo: Blackwood Photographics. Inset shows finished table. Photo: Robert Garvey.

"Look, I know how to make furniture, but I don't know anything about running my business." We've now got to the point where we can accurately cost our work.'

Absorption costing means projecting and totalling every operational cost which a business will incur. This figure is then divided by the total number of hours worked by all employees, thus 'absorbing' these costs into an hourly rate. The wages and salaries of employees and directors are included in the tally.

'I believe you should be able to run a business and make a profit without having to work seven days a week, twelve hours a day. If you've got to do that, the equation's wrong. I think that's why although we have some fantastic craftspeople, we end up losing them. The passion of working with timber isn't enough when you're paying for a family and a house. We work post-1990 on getting our costing right. I guess I don't like the idea of working really hard, and stressing at the end of the month and finding there's nothing left over.'

Material costs can be estimated after some research with suppliers. However, knowing how long it takes to build something, especially a one-off, is not as easy. When it comes to knowing how to quote for individual commissions accurate records of time taken for previous jobs are invaluable. Holst explains 'I've got three people working for me and we all count the time we spend on a given job. Each person has a time sheet, broken up into 15 minute blocks. When you change from one job to another you put a line through the time you've just spent. It's taken us years to develop a method that staff can live with; if it's too hard, they won't do it; if it's not accurate there's no point doing it.'

Holst's furniture is conservative and traditionally styled. His dining and boardroom suites, chairs and occasional furniture feature mouldings, beadings, pediments and panellings. Veneers are extensively used for their decorative potential when laid and matched along, across and diagonal to the grain. Contrasting species are commonly inlaid

Boardroom table in solid jarrah with jarrah burl inlay. Photo: Robert Garvey.

as stringings and bandings. The overall impression is of solidity, quality and a quiet kind of opulence. His work represents a distillation of furniture making traditions, but belies the fact that he is an innovator in terms of the technology he uses and the constructions he designs.

The veneer technology which Holst researched as part of his Noel Hearne fellowship harks back to that of early European furniture makers. In addition to wanting the stability, versatility and decorative potential of veneers, Holst wanted the workability afforded by solid wood .

Most veneers supplied today are 0.5mm thick, the veneers cut on the circular saw in Holst's workshop are 3mm thick. A thin kerfed (2.6mm blade) is used on a custom-made saw. The latter has an 8hp motor—extra power is needed to accomplish the first 'blind' cut.

Holst explains 'Most veneers are soaked in water and grain is fractured when sliced. Ours are cut like solid wood, so they're not really veneers, laminates is probably a better word. We can inlay, plane and hand joint the edges. We can make massive leaves which stay perfectly flat and stable in, for example, corporate air-conditioned environments.'

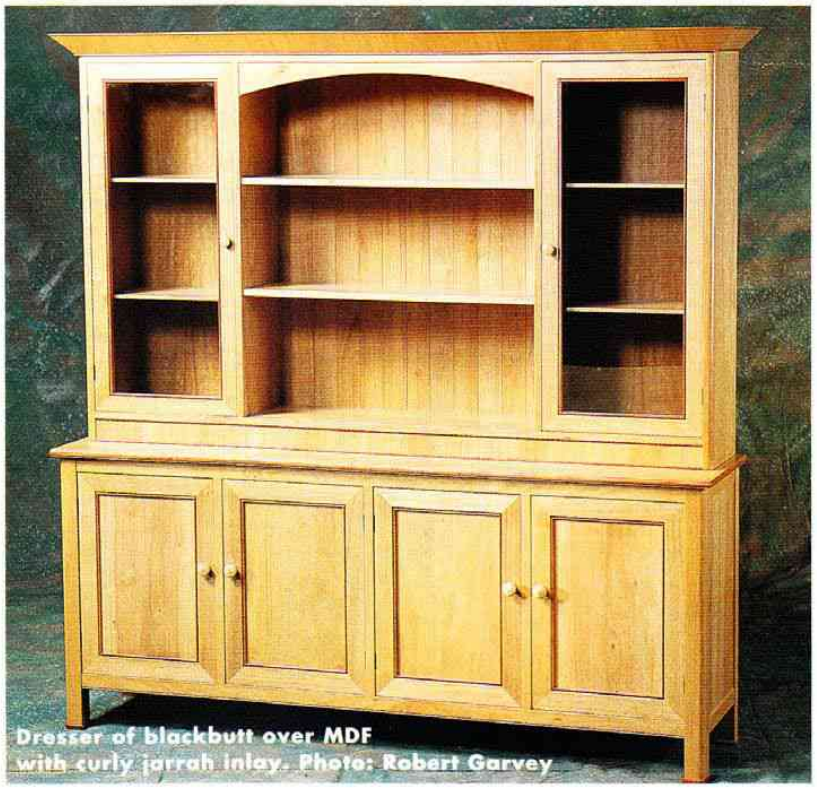
Holst has not just re-invented the wheel with this technique though, but developed it further with the use of modern machinery and (urea formaldehyde) adhesives. This technology has opened up new design choices, enabling the use of smaller-growing and less stable species such as the dense, beautiful timbers of the Kalgoorlie Goldfields.

Looking back, Holst observes, his company is now obtaining and completing the kind of commissions which he set his sights on some years ago. One-off commissions are however, time-consuming to design and make. The profit on a given commission is not always commensurate with the high price tag which sits upon it and it is the aspect of profitablity which Holst is now looking at improving.

One idea which he has is to develop some high quality production lines which he will 'market off' the more high profile commissions, analagous to the way the fashion houses sell their ready-to-wear clothing and 'labelled' cosmetics and accessories from the publicity generated from their high profile catwalk collections.

Glen Holst provides a total service to those who purchase his furniture which includes consultation, design, development, making and installation and commitment to a long-term relationship. His attitude to business is likewise an all-round balanced approach to the many facets involved.

Glen Holst can be contacted on: (08) 9761 2117.



Dresser of blackbutt over MDF with curly jarrah inlay. Photo: Robert Garvey

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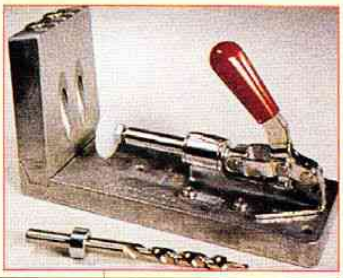

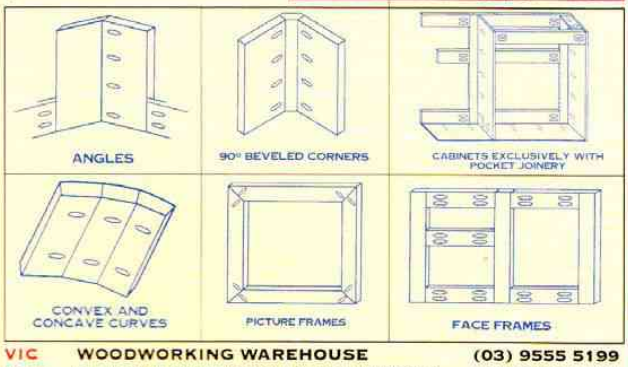

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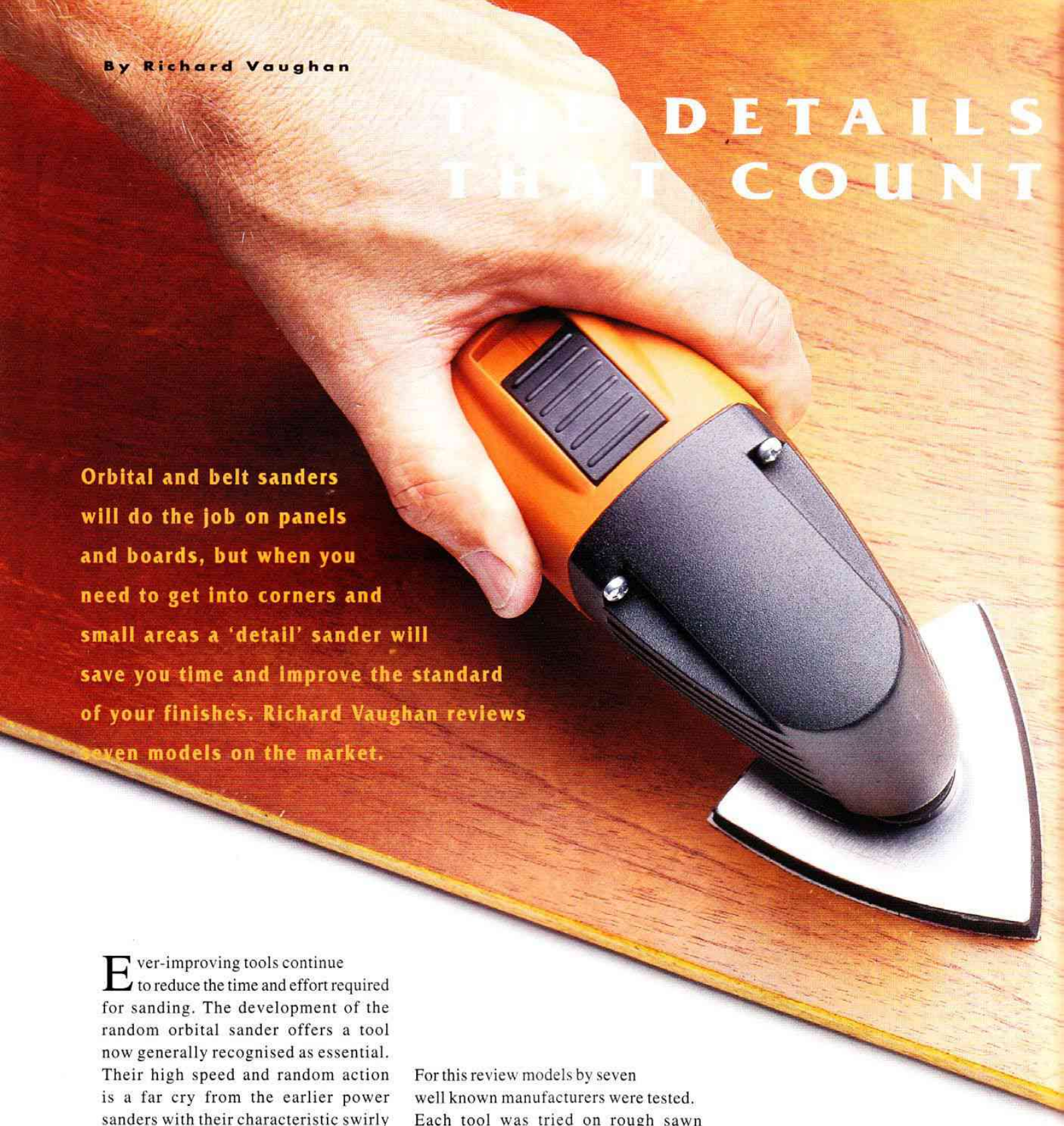
By Richard Vaughan

THE DETAILS THAT COUNT



Orbital and belt sanders will do the job on panels and boards, but when you need to get into corners and small areas a 'detail' sander will save you time and improve the standard of your finishes. Richard Vaughan reviews seven models on the market.

Ever-improving tools continue to reduce the time and effort required for sanding. The development of the random orbital sander offers a tool now generally recognised as essential. Their high speed and random action is a far cry from the earlier power sanders with their characteristic swirly marks. With better quality models it is possible to achieve a surface which is quite acceptable for finishing (though I still don't feel it's ready without the final hand sanding). But of course the size of these sanders excludes them for use in tight spaces...

The detail sander was devised (by Fein I believe) to go where the parent machine couldn't, and the market response quickly had a range of manufacturers producing their versions of it.

For this review models by seven well known manufacturers were tested. Each tool was tried on rough sawn oregon and blackwood using several grit sizes. I brushed strips of both light and dark spirit stain on the sanded timbers then coated it all with polyurethane in order to highlight blemishes. The only apparent difference in the resultant surfaces was between tools with or without effective dust extraction.

There was no obvious difference in the rate of stock removal or durability of various sandpapers, though prolonged use could well reveal such differences.

As there is no uniformity in sanding pad size or shape for detail sanders, users could be restricted to the quality of paper provided by the tool manufacturer. It is a consideration but one more relevant to industrial users. However *Norton* and *Flexovit*, the major Australian manufacturers, are working on producing the various shapes in paper of known quality as

demand requires.

All the models tested use hook and loop (Velcro is the best known hook and loop system) to attach the sandpaper. It is a convenient way of changing between grits without wasting sandpaper. The one exception is the sticky back paper used for the profiles of the *Porter Cable*, though its flat pad accessory uses hook and loop.

Power in the models tested ranged from 155 watts (*Black & Decker*) to 260 watts (*AEG*) but had no noticeable effect on performance. It's worth noting here that extra pressure on the sander tends to increase heat on the surface and wear on the tool, but not sanding efficiency.

Dust extraction is a significant consideration as it affects health, sanding efficiency and the life of the sandpaper.

The downside of a tool which can remove wood so efficiently is the quantity of fine dust it can put into the air. It would be unwise to buy a sander which didn't have provision for effective dust extraction, and unwiser still to not employ effective dust extraction. The dust bags which came with two of the tested models were not very effective.

In any case it is healthy practice to have a fan blowing across the work and going elsewhere whenever you are sanding in order to keep the uncollected particles out of your face.

For a hand tool the comfort of using it is fundamental. I sought the opinions of several colleagues here. We compared how the various models sat in the hand as well as general impressions such as the amount of vibration, switch access and operation.

The weights given (which don't include the cable) are by my scales rather than the specifications included with some of the tools. However we found that comfort in use is determined much more by the size and shape of these tools than by any differences in weight.

There are not enough differences between the sanders reviewed to make an absolute judgement, though three did stand out. The palm sander configuration of the *Rupes* will appeal to many, as will its ability to serve the dual purpose of a finishing sander with some detail sanding capacity.

The *AEG*, *Festo*, *Fein* and *Metabo* would appeal most to those who already have a larger sander and who are looking for a tool to take some of the pain and time out of renovating a house or stripping furniture. Of these I would probably go for the *Fein*. It doesn't offer the useful options of the *Metabo* but is the most comfortable to use and this would really count in the type of work it will be used for.

The pick of the bunch for me however is the *Porter Cable Profile Sander*. I've long been grateful for my random orbital sander for large or at least open areas. I do no restoration and I'm so in the habit of sanding before assembly that three's no real craving for a detail in my workshop. The *Porter Cable* appeals to me as there are always mouldings and junctions where I could save my fingertips.

Detail sanders are here to stay and will doubtless develop into whatever forms will extend their welcome. Be clear on just what you expect to be using yours for and of course do phone around as you will almost certainly find significant differences in pricing.

AEG DSE 260

1.25kgs, 260 watt. Comes in carry case. RRP $ 255 (includes sales tax)

Oscillations per minute: 8,000-11,500 (or 12,900 according to plate on tool), fully variable.

Handling: Large girth felt a tad awkward for one hand, even to my wide grip, but OK with support of other hand

Switch: A bit stiff and awkwardly placed for one-handed operation

Noise: Acceptable Vibration: noticeable but acceptable

Options included: Triangle pad, 105mm apex to apex and a slim pad protruding some 60mm (between louvres for example)

Dust extraction: 30mm OD socket provision for a hose

Black & Decker KA220E

1.26kg, 155 watts, RRP $165 inc s.t.

Oscillations/minute 6,000-10,500 fully variable

Handling: Well balanced with easy to hold handle and adjustable side handle for extra control—slight tendency to jerk

Switch: Easy access and operation by thumb

Noise: Irritating without ear protection

Vibration: Very noticeable, giving itchy tingling palms in a couple of minutes

Options included: Reversible iron shaped pad 165mm long x 100mm wide with replaceable diamond shaped tip and a 150mm circular pad. Diamond of sandpaper tends to catch and peel back

Dust extraction: Ineffectual bag with no provision for external extraction

Comments: OK as a handyman tool, which is probably its intention

Fein MS XE 63-611

1.2kg, 180 watts, RRP $350 incl s.t.

Oscillations/minute: 12,000-21,000 fully variable

Handling: Very comfortable one-handed operation

Switch: Accessible and easy operation

Noise: Not loud but high pitch demands ear muffs

Vibration: Minimal

Festo DX 93E

1.5kg, 150 watts, RRP $395 incl s.t.

Oscillations/minute: 5,000-9,500 fully variable

Handling: Very comfortable fit in hand and balance for control

Switch: Accessible though a little stiff

Noise: Acceptable

Vibration: Minimal

Options included: Only triangular pad 95 apex to apex

Dust extraction: Oval 35 x 18mm outlet designed for Festo system

Sturdy carry case with spare pad is an optional extra for about $40

From Woodman p.10, PTS p.74

Rupes

1.45kg, 200 watts, RRP $283 incl.s.t.

Oscillations/minute: 11,000 (8,500 under load)

Handling: Palm sander shape gives comfort and stability

Switch: A mite awkward at first but OK

Noise: Acceptable

Vibration: Minimal

Options included: Only 80mm apex to apex triangle pad provided

Dust extraction: Not included but an attachment for an extraction hose is available

Comments: Another generation of the design that started it all, available as cordless

From Fein Australasia, see p.47

Porter Cable Profile Sander Kit 9444

1.26kg, 210 watts, RRP $329 incl.s.t.

Comes in the sturdiest of the cases with the convenience of identified slots for each profile

Oscillations/minute: 600 stroke/min, in line rather than orbital

Handling: Well balanced and comfortable to operate

Switch: A little indefinite but manageable

Noise: Minimal

Vibration: Minimal

Options included: 127mm x 67mm wide triangular pad, a single and a twin offset mounting plate for the range of 17 profiles. Very easy to change between options

Comments: Certainly the most versatile of the units

From Carba-Tec, see.p.5, M.I.K.International, s.p.15

Options included: Triangular 150mm long x 100mm wide pad only

Dust extraction: Token bag provided on 30mm OD outlet for extraction hose

Comments: A palm sander which, can get into open corners

Metabo DS E170

1.1kg, 170 watts, comes in carry case, RRP $252 incl.s.t.

Oscillations/minute: 16,000-28,000 fully variable

Handling: Comfortable to use though not quite as good a fit in the hand as the Fein

Switch: Easy operation by thumb

Noise: Not excessively loud but pitch demands ear muffs

Vibration: Acceptable

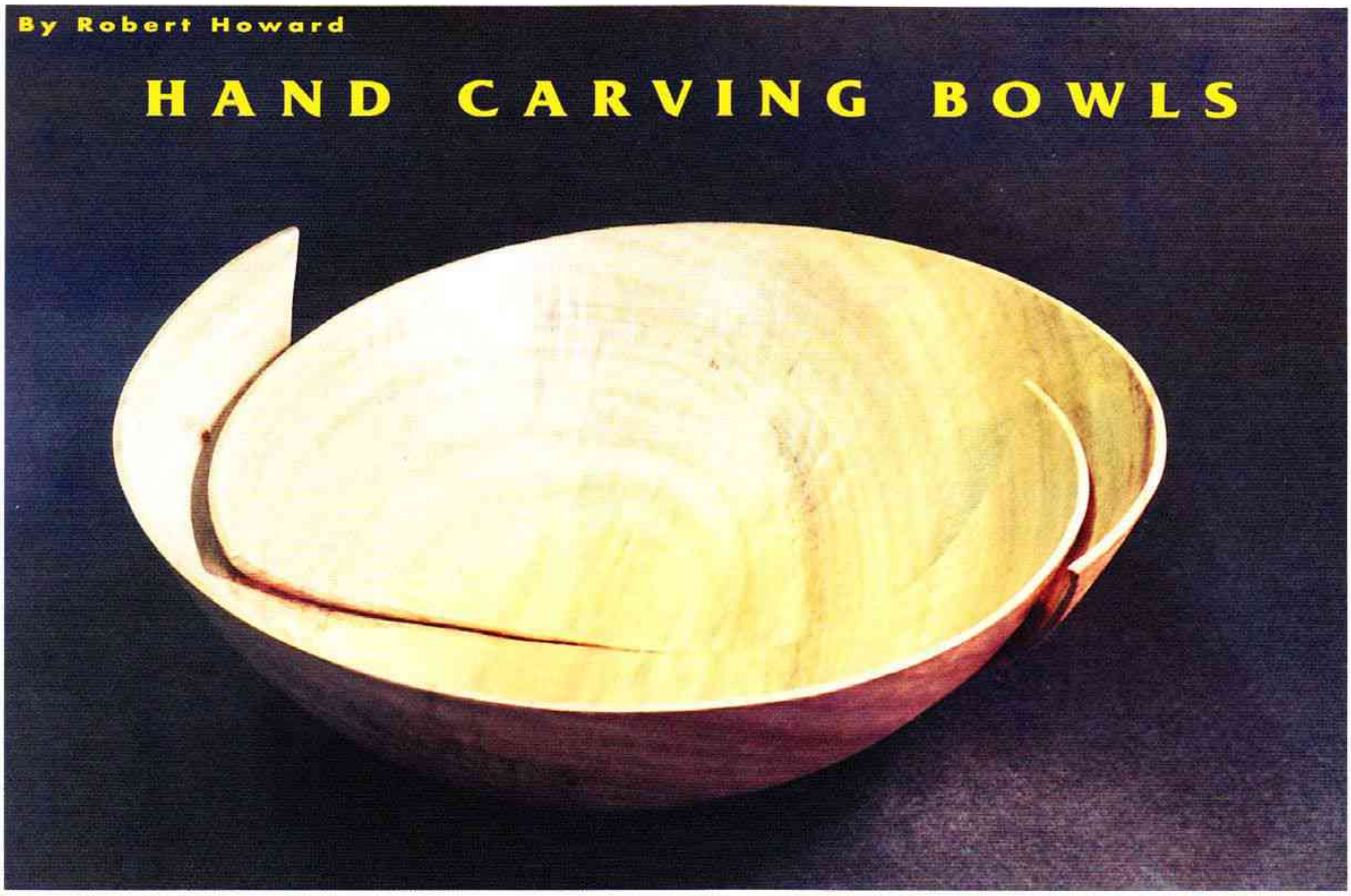
Options included: Triangular pad with 90mm between points, a slim long triangle for narrow spaces and a blade surely intended for stripping paint or rust off metal as it is too aggressive for timber

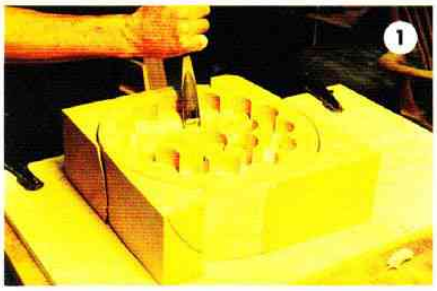
Dust extraction: 26mm ID outlet for extraction hose

From Power Tool Specialists, p.74

By Robert Howard

HAND CARVING BOWLS



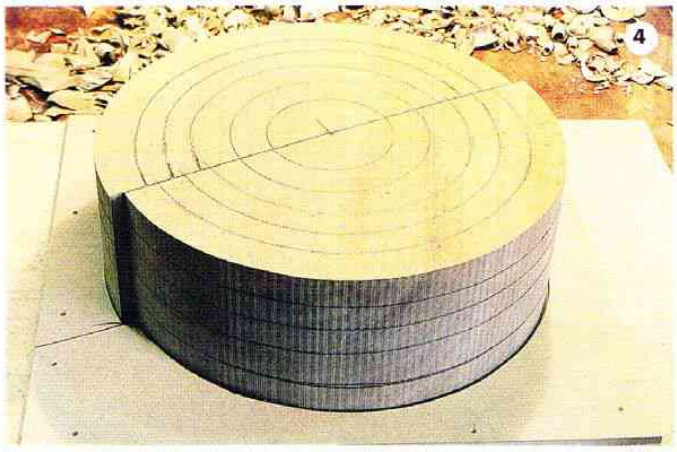


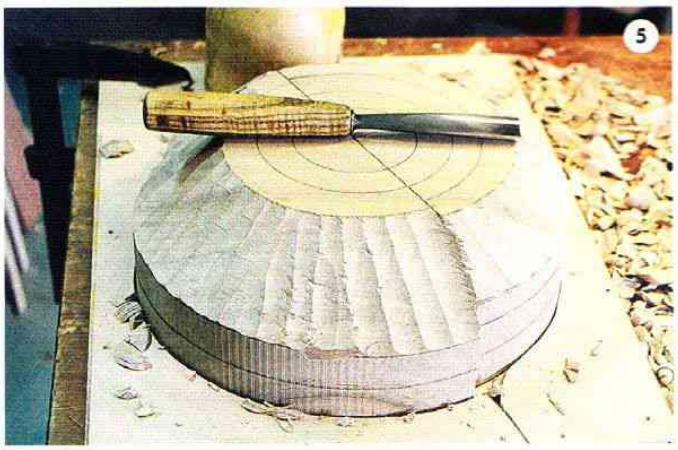
Bowl carving is a very accessible form of woodcarving. It requires few tools, and not as much knowledge or technical skill as some other forms of carving, such as traditional decorative carving.

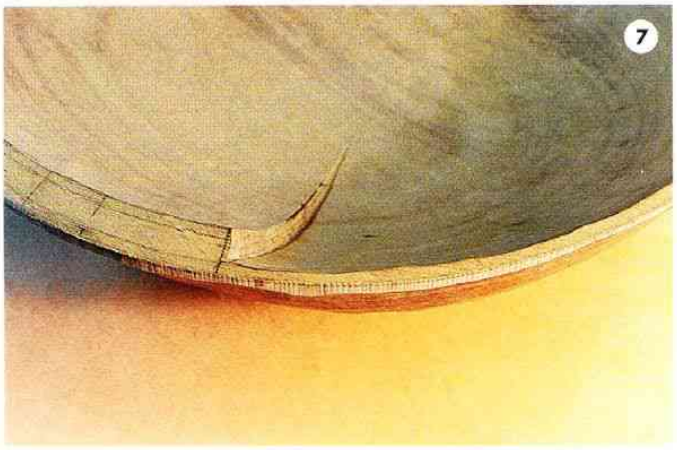
It can be as creatively challenging as you wish to make it. You can confine yourself to carving simple decorative effects onto turned bowls, or develop complex 3-D forms that are entirely hand carved. Aside from handskills you do need an eye for line, form and proportion. Developing such an eye is the most difficult part. The only easy way I know of is to be born with it. Failing that, you simply have to work at it, like a dog gnawing at a bone. For information on forms and what works and what doesn't, Richard Raffan's *Turned Bowl Design* (Taunton Press) is one good place to go.

Don't expect to carve a masterpiece first go, but don't be deterred nonetheless. Start simple, and let each effort lead to the next. Don't get too serious about it or try too hard to make a spectacular statement. I find it liberating to simply play, and particularly, to concentrate on making what I like.

My starting point for this bowl was to make two partially interlocking bowls. I decided to vary the heights of the interlocking forms to make the total form more dynamic. Each form would start high one end and spiral down.







I used a block of Australian white beech (*Gmelina leichhardtii*) 310mm wide x 110mm thick. This is a fairly bland looking wood, but it carves beautifully. Using a compass, I drew the plan and profile views on the block, being careful to avoid short endgrain where the two high, fragile outer ends of the interlocking forms would go. Knowing that I was going to use a 2" Forstner bit to drill out the bulk of the waste, I planned where to drill each hole and how deep to go.

After bandsawing the bowl out of the block, I drilled out the waste. The bandsawn off-cuts were screwed from the base onto a 10mm MDF board to make a simple holding device while the inside of the bowl was carved. This device allows me to work right around a bowl, because it can be lifted out, turned 180° and dropped back in.

Photos 1-3 show the progression of the inside form. I relied on my eye to arrive at the final form. It helps to work methodically and neatly. Thus the first curve should be a miniature version of the final shape. Working this way, you practise carving the shape many times before you get to the final version.

A 25mm no.8 straight gouge was used for the upper sections, and a 25mm no.5 spoon gouge for the bottom curve. I later changed to the flatter 30mm no.3 gouge and 20mm no.3 spoon gouge in order to achieve a smoother surface. I paid particular attention to the top edge, checking it was on the line, and that the form ran true to the edge and didn't bell outwards to the edge over the last 10mm or so.

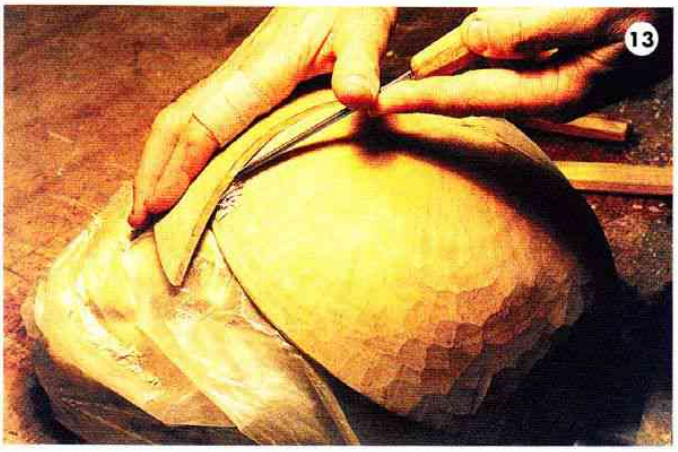
The ends of the interlocked forms were cut in with V-tools as straight radial curves. Here I fussed enough to make sure the inside was basically as I wanted it, but not so much as to finish it. I would come back and do this later.

I now turned my attention to the outside. My first requirement was to find a way to hold the bowl. I traced the form on a sheet of 6mm MDF and cut the shape out leaving some clearance. Then I nailed and glued this sheet to an 18mm sheet of particle board that I had handy.

With this clamped to my bench, I was free to work on the bowl, and could quickly and easily turn it around (photo 4). To carve the outer form in a methodical way I drew concentric lines on the base, and around the circumference. I found it easier to draw the lines at random and depend on my eye to work towards a form I like.

Photos 5 and 6 follow the roughing out of the form, again using the big no.8 gouge. As on the inside, I used the V-tool to cut the interlocking edges, and the flatter no.3 and no.2 gouges to smooth out the final form.

The outer profile must flow and harmonise with the inner form. To achieve this I checked constantly, turning the bowl and spotting and removing lumps and bumps as I went. My final test is to sight both the inside and outside forms from the edge, as shown in photo 7. This very quickly shows where the lumps are. I carved the outer form to within about 2mm of the edge, making sure the form ran true to this point.



The next step was to work the third dimension: to vary the heights of the forms. I drew what I thought were good looking lines (see photo 8). The waste was carefully removed, while sighting along the top edges to avoid humps and hollows.

At this point I decided to curve the straight radial lines at the end of each form and also on a finer finished thickness. I drew my revisions on the bowl (photo 9) and reworked the entire inside and outside surfaces, refining more closely to their final form (photos 10, 11).

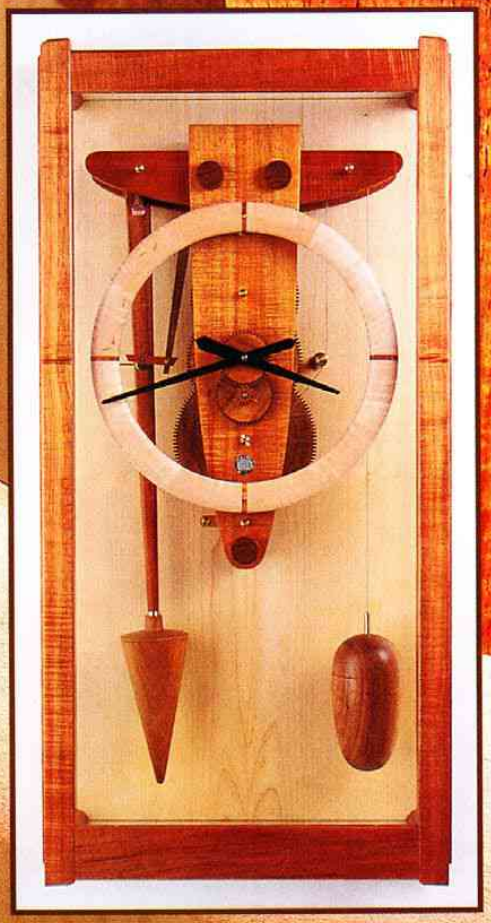
The final step was to undercut the forms where they intersected. This fiddly and tedious procedure involved cutting and progressively teasing out shavings and splinters of wood from the bottom of a deep V-cut (photos 12, 13). A skew chisel (with one bevel only) is helpful here too, or even a knife.

All I now had to do was to progressively refine all lines, edge thicknesses, and surfaces until I was happy with the overall form. Because I like the warmth of a tooled surface I decided not to sand the bowl, but to finish it off the tool. I did run some 400 grit paper over the edges to make them friendlier to the hand. I rubbed on a finish made up of equal parts of tung oil, boiled linseed oil and Feast Watson Weatherproof.

I enjoy the act of cutting wood, and can bliss out while peeling off shaving after shaving, so I have the patience to work, rework and rework yet again all the surfaces as I gradually close in on the final form. If you don't think you can do that, then probably the lathe, power carvers and sanders are the go for you.

Robert Howard is a woodcarver and furniture maker in Alexandria, NSW.

By William Matthysen



TIMELESS DETAILS

'One of the joys of clockmaking is that it requires attention to detail at every step...' explains Will Matthysen

Main image and detail: 'Clock 0036', blackwood, maple, ebony, stainless steel, brass, MDF, 1050 x 530w x 200mm. Photos p.48, 51, 52: Terence Bogue

The fifty or so clocks I have made, largely from wood, have become progressively smaller and more compact. My early clocks were wall-mounted, free-form sculptural pieces, over two metres high. My latest ones are about a quarter the size, and include a strike, which provides continuous power to the wheel train while winding. I am currently working on a prototype for a clock which shows the phases of the moon.

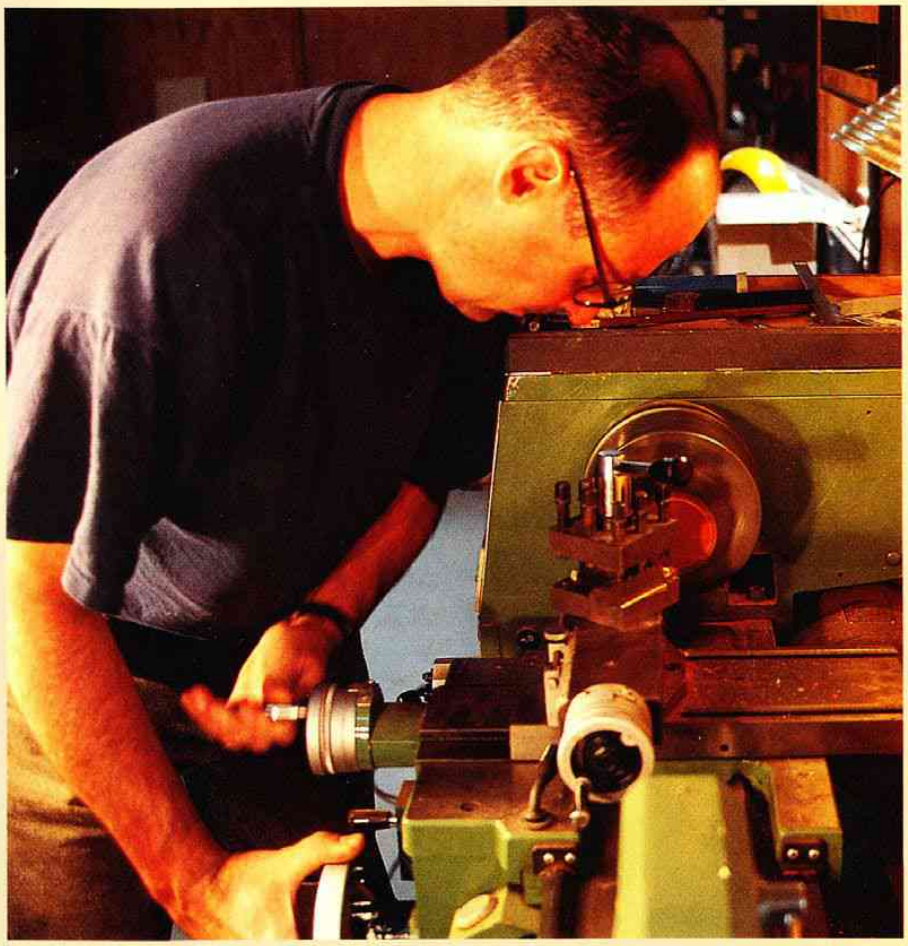
Over the past few years I have designed a simple glass cabinet to house the mechanism. But recently the cabinets have become more elaborate and have picked up architectural influences such as columns, capitals and cornices. I call them my little 'temples of time'.

I produce my clocks in small batches of six to ten and use different timber combinations and details to ensure that each is unique. Buyers value the fact that each clock individual and numbered so. Work destined for display in a gallery gives me the freedom to try out new ideas and timber combinations, while commissioned work focuses the mind on satisfying a particular set of criterion. I find this process enjoyable, and often it leads me to designs and solutions that I would not have arrived at alone.

Many commissions come as a result of a desire to commemorate a special event in people's lives, a wedding anniversary, a birthday, or birth of a child, and are generally seen as heirloom pieces. Clocks and watches have traditionally been associated with personal milestones, the anniversary clock and the gold watch are two examples.

People often ask me why I use wood, to which I must confess I have no strictly rational answer. I suspect it's because, as with furniture, wood opens up a range of aesthetic and design possibilities not inherent in other materials. And in any case, of all the materials nature has provided us with, none has 'time' written over it as graphically as wood!

In engineering terms, wood can be quite suitable for clockmaking, given that the loads are relatively light. What



Truing up some wheel blanks on the lathe.

is probably more important is to ensure dimensional stability. The use of wood in clockmaking is not new, the Swiss and Black Forest Germans used wood in the 17th century, and the Americans mass-produced wooden clocks in the early 19th century. These proved to be remarkably reliable and enduring; thousands are still running in museums and houses today and they are now highly collectable.

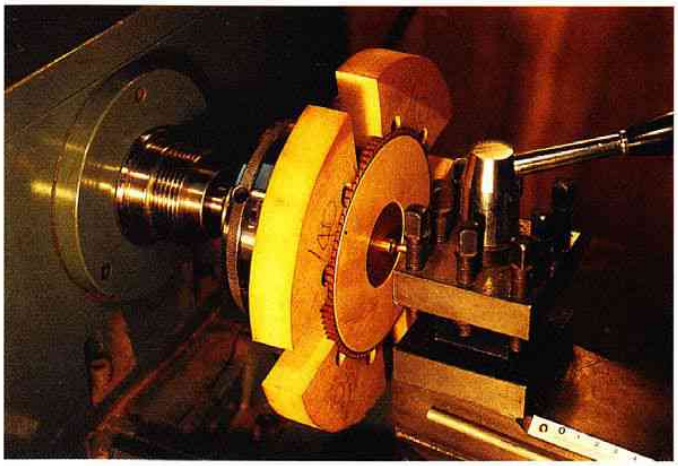
Like the Black Forest and American clockmakers, I use other materials such as steel and brass for the pivots and bushes (the non-leafed variety). The teeth of the wheels are either of timber or high density fibreboards for the smaller sizes. The clock plates are generally of native hardwood. I try to arrange the wheels lengthwise parallel to the grain. Quarter-cut timber is essential here, and I prefer to select species with a low shrinkage coefficient.

I normally re-saw my timber soon after purchase, and rack it out in the loft space of my workshop. During the summer months temperatures up there reach 30-40°C, with relative humidity of 60-65%. Using a chart kindly provided to me by the CSIRO division of Forest Products, the equilibrium moisture content of timber stored up there should be around 10%. I now re-saw the timber into blank sizes for the various components and dry them further.

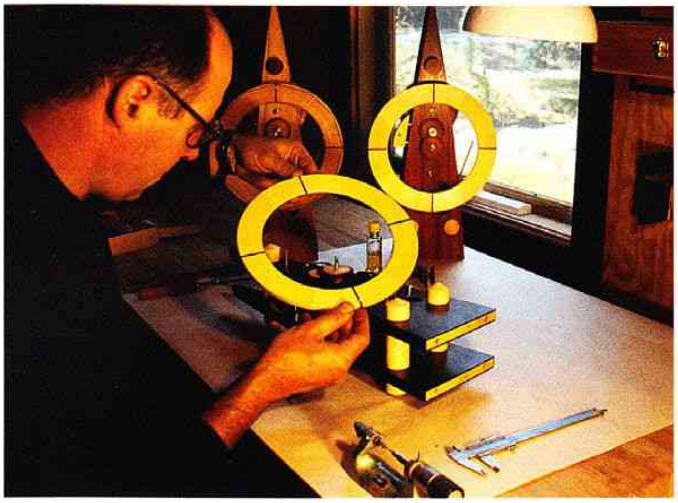
This takes place in my 'hi-tech' drying cabinet. This consists of a large-ish cardboard box, decked out with wire mesh shelves to support the blanks, and one or two light bulbs at the bottom. The normal incandescent bulb generates more heat than light, and this inefficiency suits my purpose admirably. I ensure that no timber or cardboard is within six inches of the bulb, as it might be a potential fire hazard. I normally punch a few holes in the top and bottom of the box to allow a convection current to be set up. After a few weeks in the box the blanks are down to 8%mc. Ensure that air can circulate freely around each blank, and rotate their position within the box to even out the drying.

I then remove the wood from the box and rack it out in the workshop. This

Left: Machining a batch of wheel blanks on the milling machine. The compound table traverses the rotating cutter from left to right. The rotary table with the indexing plate is rotated a tooth width before commencing the next cut. Right: Checking the mesh of a wheel and pinion on a homemade depthing tool. The depth of mesh is critical and ensures the smooth running of the wheel train. The distance between centres is then directly transferred to the clock plates.



Left: Polishing the pivots. Pivots are made from hardened steel and polished to a mirror finish to minimise friction. Right: Drilling and boring the centre hole of a completed wheel. My woodturning chuck (Vicmarc 140) has been adapted for use on my metal lathe. The chuck has been fitted with MDF 'soft jaws' which have been turned with a rebate to suit the wheel diameter. The wheel can now be accurately centred and drilled.



Left: The completed wheel assemblies are assembled on the clock plates. Right: The top clockplate and dial are fitted.

allows it to rehydrate and stabilise to workshop conditions. Timber rehydrating is generally less problematic in terms of shrinkage and stability than a timber product which is forced to lose moisture by being in a drier environment. I carry out a final check with my moisture meter before machining and laminating.

One of the joys of clockmaking is that it requires attention to detail at every step; any attempt to cut corners and 'get away with it' will be guaranteed to haunt you later on!

With the exception of a few grub screws, I make all the parts for the clocks in my workshop. I have resorted to batchwork for manufacturing components such as wheels, pinions, ratchets and arbors, making fifty to a hundred of each depending on the job. The advantage

of this is greater productivity and better quality control. I spend a lot of time setting up a particular machine for a job, and carry out a few test runs and fine-tune any adjustments. The set up time might be half an hour, the actual job a few minutes. Doing a repeated action gets your 'eye in' and helps to perfect a technique.

The downside of batchwork is that this repetition can test your patience. In this instance I tend to have two or three jobs running simultaneously to provide some variety. Literally months can pass by and all I'll have to show for my efforts is a handful of bits. But once the machining is done the assembly begins. This is the enjoyable part of the process, assuming of course that everything fits the way it is meant to.

It is essential to allow for some adjustment in the way the components come together. The brass bushes are friction-fitted into the wooden clockplates and can be adjusted to provide sufficient 'end shake' for the wheels. Likewise the depth of mesh of the wheels and pinions, and escapement is achieved by means of fractionally rotating an eccentric bush. I was quite proud of my solution. Later I was told by a watchmaker that the same technique had been used two hundred years ago in pocket watches, before mass production, when each wheel had to be individually fitted.

For a traditional brass movement, the adjustment of the piece in the maker's workshop will generally be suitable for most climatic conditions, The introduction of wood into the equation however, complicates matters considerably, and has taken me many years of frustrating trial and error to resolve. Hence my efforts at drying the timber, using quarter cut material from a stable species, and my attempt to place dimensionally critical parts parallel to the grain.

'Clock 0041' red stringybark, ancient redgum, red box, aluminium.

These are facts musical instrument makers have known for generations and something I'm now adapting in my work. I sometimes see wooden clocks that look like imitations of brass movements. At the risk of stating the obvious, the fundamental problem here, I think, is that wood is not brass. A clock in wood must adapt and evolve its design to the nature of the material, and this for me is the challenge.

Once the movement has been assembled and adjusted, I start making the pendulum. This consists of two parts, the rod and bob. The stability of rod length is critical to the timekeeping performance of the clock. This is where wood is ideally suited. For example, a pendulum rod made from blackwood one metre long, will vary in length between summer and winter by 0.125mm. Steel would change by twice as much, and brass by three times that amount. Now this might not sound like anything

worth bothering about, but with the exception of using Invar or a complicated compensation pendulum, wood is the ideal material. My longcase clocks run to within a minute a week.

At this stage of production I'm itching to see it going, so I mount the movement and pendulum on a temporary board. A tin can filled with lead weights is hooked to the winding barrel, and I give the pendulum a nudge. If all is well it should spring to life and take off by itself. I test run the movement for several weeks while I get on with making the case. During this time I progressively shorten the pendulum (I start off with an oversized rod), until I'm within timekeeping range. The pendulum bob is a turned wooden shape (I prefer cones) which is attached to the pendulum by means of a threaded rod. This allows for finetuning of the clock.

To find what weight is adequate to run the clock, I initially run it on a weight just sufficient to keep it ticking over, and then add 50%. This allows for any increase in friction due to dirt or dust that may accumulate over time.

'Clock 0037'

Finally I turn the driving weight (here I prefer 'F' shapes), core it out, and fill it with the correct amount of lead. After a trial run of about a month, during which I make the final adjustments, I disassemble the whole movement, clean and oil it.

Clockmakers are a funny bunch, some old timers (excuse the pun) are adamant that a clock should never be oiled, since it only attracts dust and encourages wear; the other group believe that modern mineral oils have improved substantially since the days of whale oil and significantly reduces friction and improves performance. I used to belong to the former but have since been converted. I oil all the pivots and escapement. One is immediately rewarded with a quiet, soothing tick.

I have been making my clocks full time now for seven years. I've made many mistakes and been through a steep learning curve. Sometimes I feel I'm reinventing the wheel—but it is my wheel. During this time I've met many people who have offered encouragement, and shared their knowledge and skills with me. Finally, nothing compares with the satisfaction of taking an idea and running with it, and turning it into something valued and enjoyed.

By Ted Anderson

TURNING SEGMENTED FORMS

Photo: Terence Bogue

Turning segmented or laminated sections of timber opens up enormous design possibilities. With the variables of section size, species, colour and patterning your turnings can express all your geometric fantasies! Not only must all the usual prerequisites of creating a pleasing form be met, but care must be taken to precisely calculate, cut and join all the segments of your project.

You must start with a full size drawing, otherwise you may easily lose the plot and finish up with an unexpected result. I use a drawing board and a T-square, but graph paper will also allow you to map an accurate design.

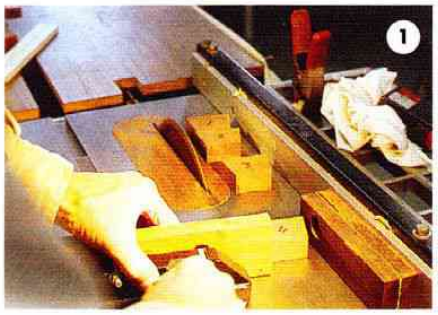
For this project I have made a bowl to illustrate the basic method of segmented turning using the stacked ring method.

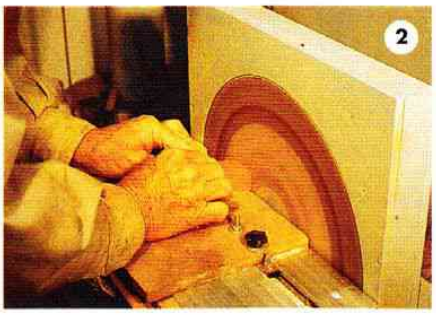
Figures 1 and 2 on p.55 show the bowl in side and plan views. The different coloured blocks denote each ring layer and how they should be overlapped. The dotted lines show the actual size of each wedge, to which I add 2mm to allow for sanding. Each ring has 12 segments (except for the centre bands)—this is the number I usually choose. By dividing 12 into 360° an angle of 30° is arrived at. The side of each segment will be half that—15°.

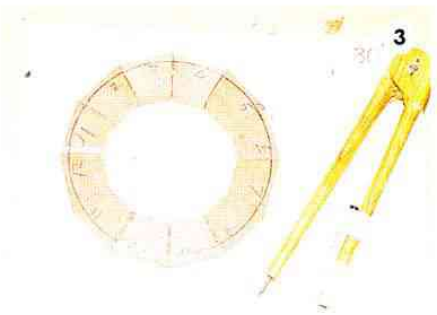
Step 1

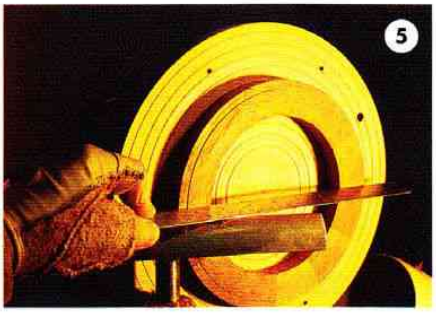
Cut all timber to size, making sure it is oversize for thickness (22mm is ideal). I cut the timber into strips which equal the radial length of each segment. I like to do this at least two weeks in advance and sticker them out in the workshop. The actual cutting size of each segment is referred to as the 'chord'. This is the largest dimension of the segment between each radial line which should include a further 2mm sanding allowance.

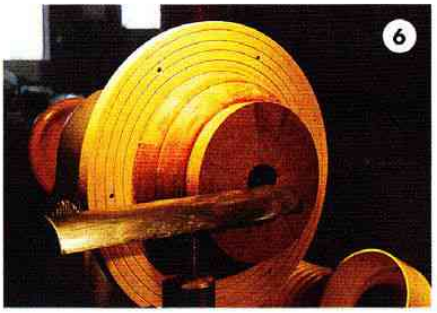
A bandsaw, benchsaw or jigsaw can be used to cut the segments, however I use a table saw with a 40-tooth tungsten carbide blade and a sliding protractor, numbering as I go (photo 1—note, guard has been removed for visual clarity). A block of wood, bolted to the main fence acts as a length stop and, if at least 150mm in front of the blade, prevents the segments jamming against the fence and thrown at you at high speed. Be very careful to move each segment away from the blade with a pushstick after each cut.

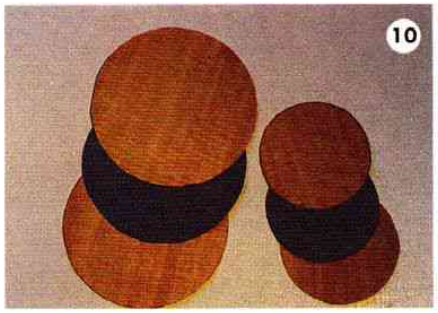


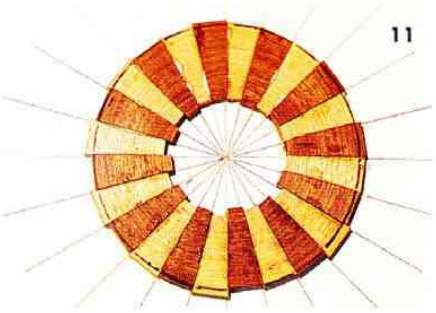


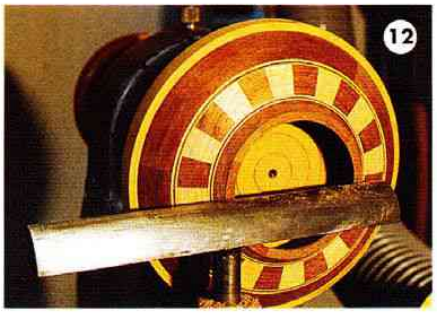












Step 2

I sand the edges of all segments on a disc sander, making sure that the table is at 90° to the sanding face (photo 2). I have made a sliding table on which templates of different angles can be fitted as required.

Test fit segments on a setting out board—they should fit exactly. Glue these together on a piece of melamine to which a diagram of the segments has been drawn. I use a protractor and a permanent felt tipped pen (photo 3). Melamine offcuts can be purchased from most kitchen manufacturers. A liberal dab of glue (I use AV270 which sets quickly, strongly and with minimal creep) is applied to one of the segments and the next one is rubbed against it exactly into position on the diagram.

Gluing up in numerical order will give a butcher-block arrangement. The excess glue that squeezes out onto the board will hold it firm on the board. After the glue has dried use a compass to draw a circle on the ring to the required size. The ring (we'll call this 'ring A') can then be easily prised off with a sharp chisel.

Step 3

Band- or jigsaw closely to the compass line. Cut as near possible to a perfect circle so the ring will line up accurately for the next step.

Step 4

The ring is then fixed to a wooden faceplate with double-sided carpet tape (photo 4). Concentric grooves on the faceplate make it easy to centre the ring accurately. If the ring is off-centre the segments will be sized differently and it will be impossible to line everything up later on.

Step 5

Face off the exposed surface of the ring perfectly flat and turn it to the diameter required. Mark a circle which is the diameter of ring B on the exposed surface (photo 5) in order to position the next ring accurately. It is an advantage if you have another faceplate to turn the B on, so ring A can be left in place. Make ring B face and turn it to the diameter of ring A.

Fig.1

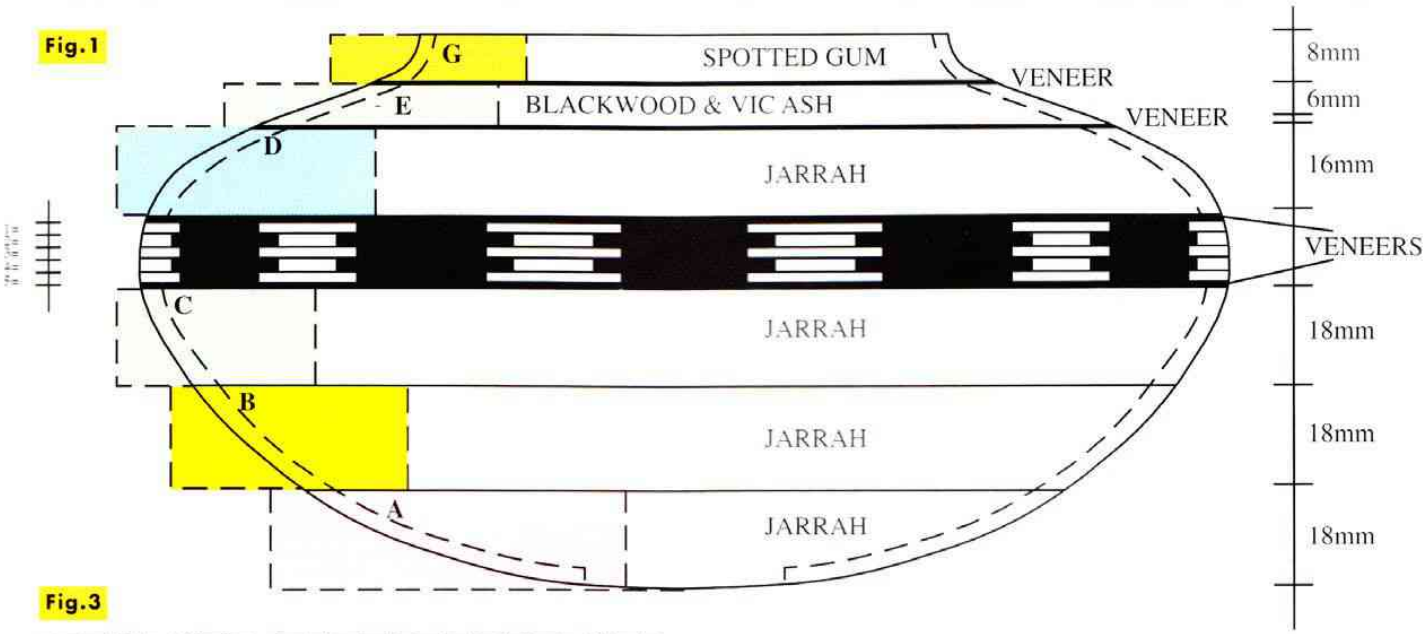


Fig.3

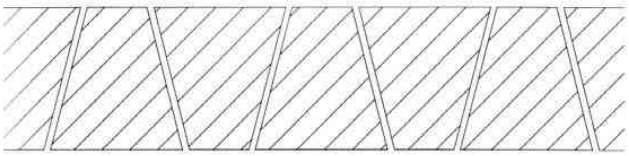
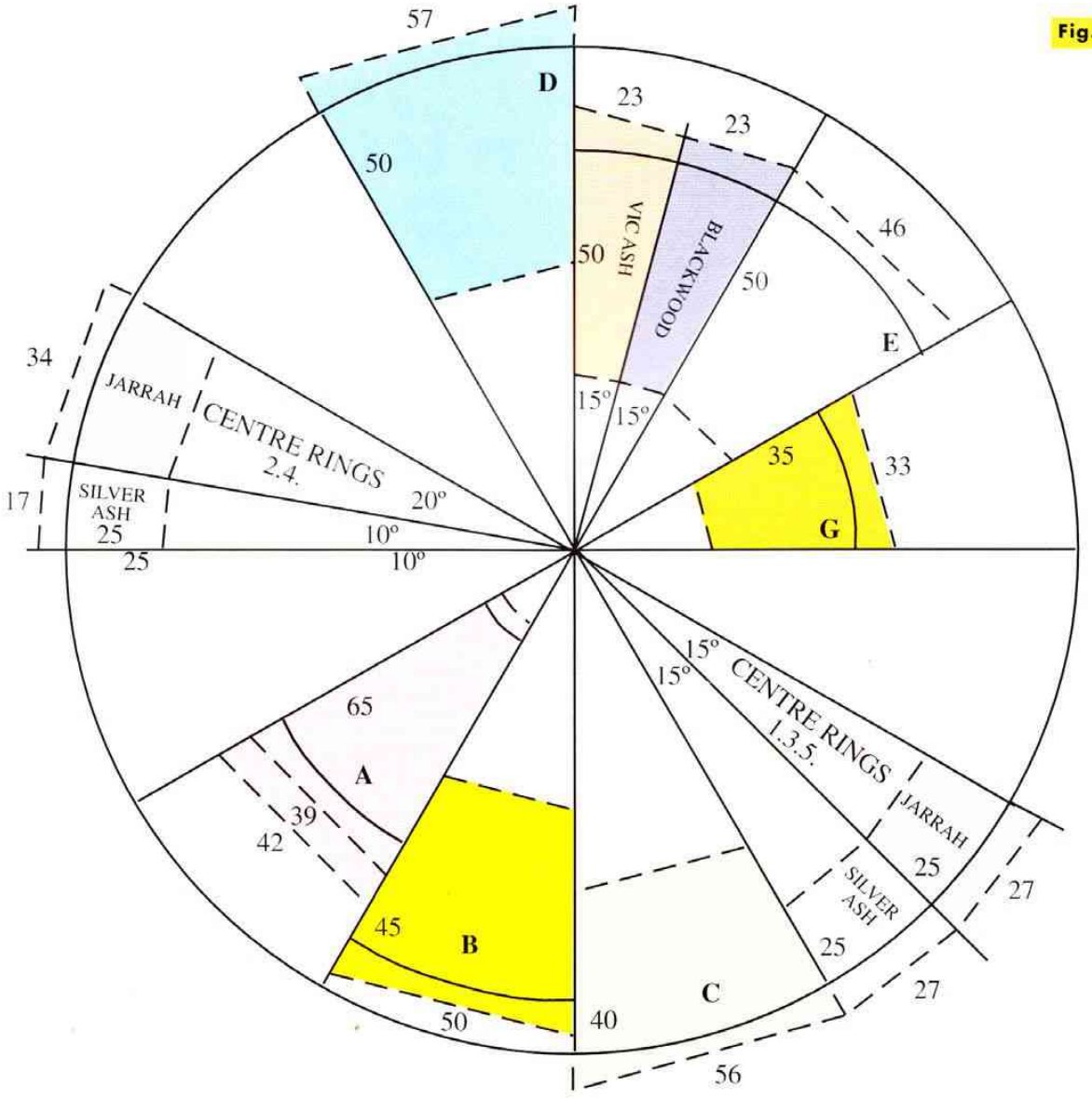
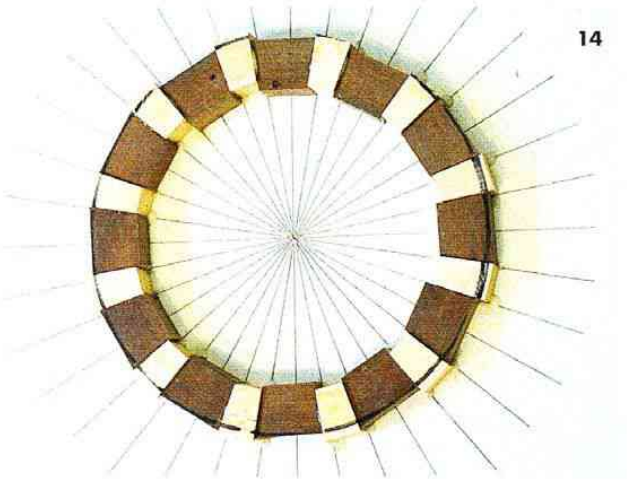
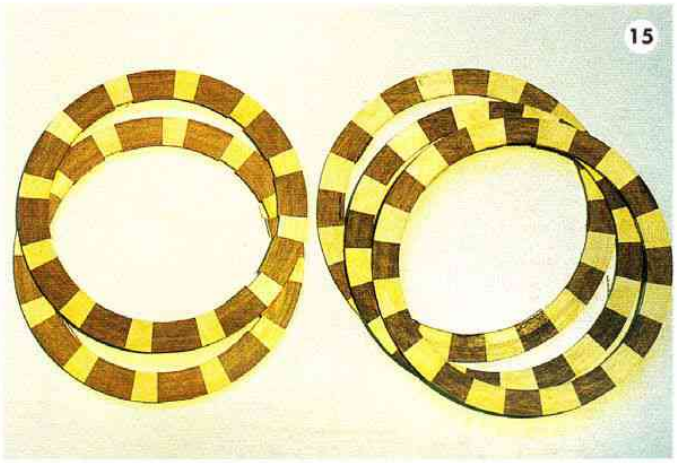
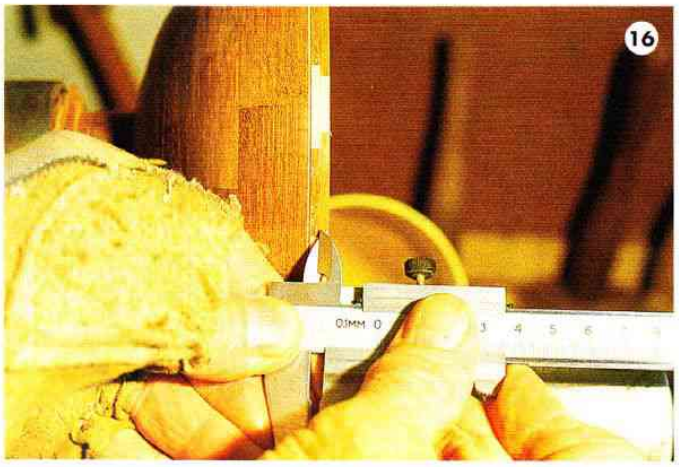


Fig.2









Step 6

Turn off the corner of ring A and then glue ring B to A. A heavy weight will provide sufficient pressure while the glue dries. Make sure the ring is precisely located and the segments are in a brickwork pattern. When dry, face this ring to 18mm thickness and then mark a circle which is the diameter required for ring C.

Follow the same procedure and when the glue has dried, remount this assembly on the lathe and turn the outside shape of this section (photo 6).

Step 7

Turn out the bottom to receive a plug, making sure that it is parallel (photo 7). Fix a block of selected wood onto a screw chuck and turn a plug to fit the hole, once again checking it is parallel and neat (photo 8). Glue it in place (photo 9) and when dry, the completed lower half of the bowl can be removed from the wooden faceplate and then reversed onto the headstock. You can hold this with a screw or scroll chuck. Turn the inside to the desired thickness (I like a wall thickness of 4-6mm) and then make the face perfectly flat. Remove this section from the headstock and place aside, still attached to the chuck.

Step 8

Make up ring D and, after truing the face, remove it still attached to the faceplate.

Step 9

Photo 10 shows the circles of veneer which must now be cut and glued one by one, (start with the larger ones) to ring D. Alternate the colours, starting with the lighter veneer, and lay each successive circle with the grain at 90° to the previous one. Use a piece of melamine and a weight to glue each veneer circle.

When these are dry remount the assembly on the lathe and turn off the excess on the outside—I use the point of a skew chisel for this. Now you are ready to make the ring of blackwood and Victorian ash. This is made in a similar manner, but with 24 segments (you will have to make another setting out board to suit, the angle will be 7.5°) see photo 11. Remove the ring when dry and face off on the wooden faceplate, then remove and glue to the uppermost veneer layer. When dry, face off to the required thickness and glue the smaller set of veneers to it in the same way as before.

Step 10

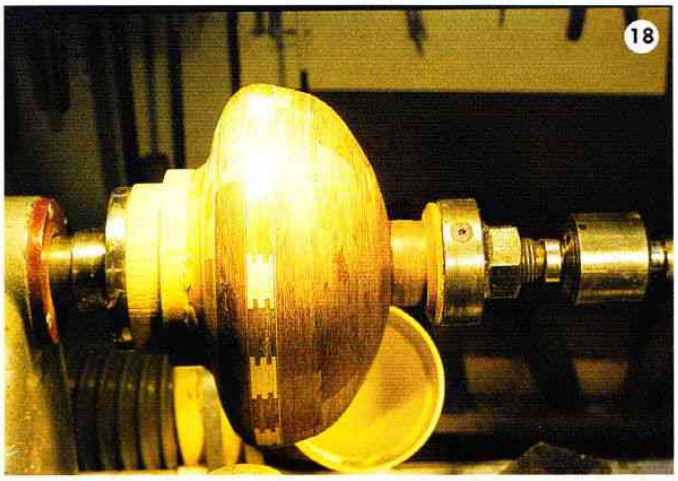
Make up the top ring (I used spotted gum) and fit as before. Turn this section, shape the outer wall and rim (photo 12) and remove from the headstock and make a jam-fit chuck to suit the inside diameter of the rim (photo 13). Reverse the top assembly onto the jam chuck and now turn the inner wall.

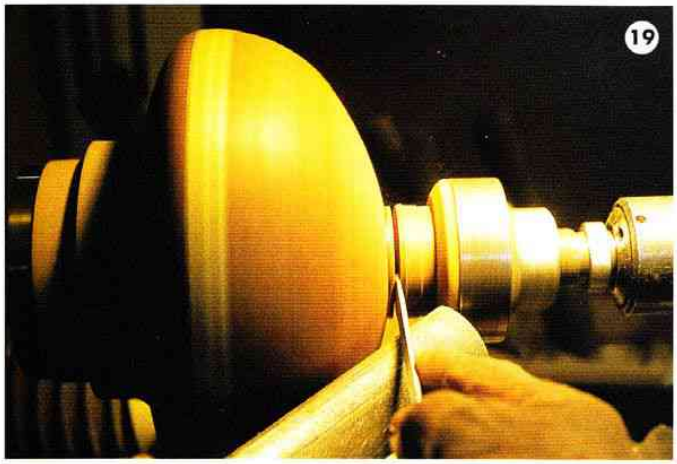
Step 12

The next step is to make up the centre bands—for this you will need a setting out board using a 10° template. The bands consist of three rings of 24 segments at 15° and two rings of 24 segments. If you look carefully at photo 14 you will see that one segment is at 10° and the other is at 20°.

Step 13

Glue up a ring of each of the above segments using 19mm thick wood and following the previous procedures fix





each to a wooden faceplate and face off the outer surface, then part off rings of 4mm thick using a thin parting tool. In photo 15 you can see the rings ready for assembly. Glue ring 1 to the top section and ring 5 to the bottom section. When these are dry face them off to 3mm thick (photo 16). Rings 2 and 4 are then placed in position so that they form the pattern on the final piece, after you have faced these to size you can fit the centre ring to either the top or bottom section so that it lines up with rings 1 and 5.

Step 14

Carefully turn off the excess of the bands on both the inside and outside and make sure the wall thickness is the same top and bottom (photo 17). You can now sand the inner surfaces and finish with a sanding sealer.

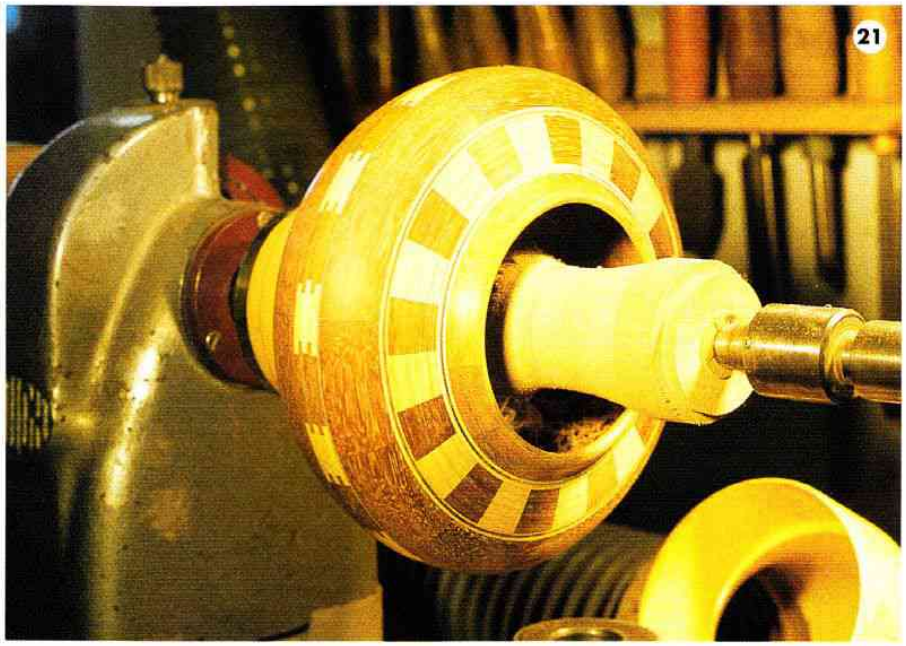
Step 15

Join the top and bottom (note the revolving tail centre in photo 18). The bowl is ready to final turn and finish sand and you can part off the plug on the bottom (photo 19) and finish this section (photo 20).

Step 16

Sand to at least 400 grit, the bowl can be removed from the lathe and a jam chuck made to suit the plug in the bottom then the bowl can be mounted and held in position with a dowel and a piece of rag to protect the inside from scratches (photo 21). The rim can now be finished and the bowl removed and oiled or waxed, as you prefer.

I personally enjoy creating and turning laminated forms with this method. I hope my explanation will give you the opportunity to experiment with this technique.



By Dinah Hall

THE MARK OF FIRE

Pokerwork, woodburning, pyrography all describe the art of painting on wood with fire. By varying the pressure and heat of a heated metal tool a surprisingly diverse range of markings can be produced. Decorating wood with fire is an ancient art common to many cultures which is undergoing yet another revival in this country.

Examples of traditional Australian pokerwork on this and adjacent page courtesy of Helena Walsh.

Since ancient times humans have decorated objects with the aid of fire. From weapons to water containers the mark of the fire has been used as a cultural expression. Collectors of Australiana often seek out examples of pokerwork dating from the revival of the art with the Arts and Crafts movement of earlier this century. Today many woodworkers are re-discovering the art of decorating and illustrating with heat.

History

Souvenir collectors can still find pokerwork, as an expression of daily community traditions and identities in the ethnic art of areas of Latin America and some of the Russian states. However, the evolution of pokerwork and pyrography in Australia is a different story.

The Arts and Crafts movement of Britain's mid-nineteenth century reclaimed the art of pokerwork as an expression of individuality in decorative arts which was somehow lost in the industrial age. Translated to Australia, Arts and Crafts societies were established in every state by the beginning of the 20th century with pokerwork booming in popularity in the 1920s and 30s.

Indeed, the societal effects of the First World War and the Depression with the accompanying mass unemployment led many women to supplement the family income by producing and selling domestic items, decorated with pokerwork.

It also became the therapeutic activity as many a shell-shocked WWI veteran discovered. Some of the more curious domestic items created were crumb sweeper-uppers, matchbox stands and pipe stands, all embellished with the hand of their creator. Meanwhile, many woodturners gained income by generating blanks to on-sell for decoration.

In another historical beginning to pokerwork in Australia, humble materials produced beautiful collectable results as many of the indigenous population had shown for many years—clapsticks, carvings, woomeras, boomerangs and spears, bull roarers and other sacred objects were often decorated for ceremony by means of fire.

In the lead up to the Sydney Olympics in the year 2000 one manufacturer, Ironcore Transformers, is working overtime to keep up with demand as souvenir quality items are produced and stockpiled in anticipation of demand for these handcrafted items.

Australiana

Some of the pokerwork completed in the 1920s and 30s was heavily influenced by the school of Art Nouveau harkening back to 'the old country' as it featured chestnuts, maple and oak leaves. Local pride, however, translated into motifs from the immediate environment including those which were identifiably Australian: from the fauna to the flora, the subject matter was a statement of cultural independence from any other cultural influence—especially the Empire and its colonies.

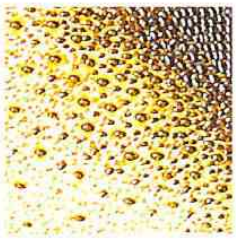
These were snapped up by householders and souvenir hunters alike. Utilitarian objects from breadboards to bowls, heat stands to cheese platters, bookends to footstools featured everything from poinsettias blooming alongside waratahs rendered in pokerwork, stained with Indian ink, coloured with brilliant dyes and often sealed under several coats of lacquer. These were produced in factories, finished by mainly women workers and sold in department stores such as Grace Bros.

Later in the 1930s animal motifs were incorporated into the overall design, especially the koala and the kookaburra, but the blue wren is a recurrent theme, as are brolgas, parrots, rosellas and honeyeaters. Significant events in Australian history—such as the opening of the Sydney Harbour Bridge were also recorded in pokerwork. It is perhaps these more kitsch items that may have led many away from the art.

Today collectors of Australiana pay well to own a little bit of these first statements of cultural identity. Something as mundane as a doily holder, dating from the turn of the century, will attract up to $100 at the local antique dealer. The weekend market trade is also seeing booming sales in the reproduction of Australiana-style items.

Which Wood Burns

Half the battle of effective 'woodburning' is choosing the right type of timber to


burn. Ultimately this is a matter of trial and error dependent finally, on the particular style you develop. The Australiana of yesteryear did its level best to obliterate any grain markings with the vivid contrasts offered by boot polish/Indian ink and/or red dyes. This was in the context of a pre-plastic world. Today however, highlighting the organic nature of the material is paramount, and with the vastly improved knowledge of indigenous timbers virtually any timber is worth a burn.

Generally speaking, the lighter timbers will optimise the amount of visible detail. Some suggest it is more difficult to burn a continuous line through pine as the more porous timbers allow heat to flow along the grain thereby distorting the design; finally though it will depend on your technique. Barbara Armitage has had substantial success with her treatment of old kauri pine school desks. Armitage, who also inlays agate into her designs, says that pine responds well to her very hot, deep burning technique. Her pyrographic technique is complemented further by the addition of the more subtle hues of silk dyes which are French polished to achieve a unique and rich golden finish.

Joy Day is one of the better known Australian exponents of the art having embraced it first 24 years ago when she became intrigued with her grandmother's Australiana doily holder. As artist and teacher she has provided the springboard for many other pyros into full time careers.

With the lack of availability of good, affordable, even-grained softwoods such as basswood, beech and lime, Day has embraced pine plywood as a good standard. Plywood has been employed successfully for murals such as the 5' x 9' completed as a community project, with Denise Needham, which tells the history of the Lucindale district in South Australia. Day has embellished countless objects in everything from redgum to oak. Some guide books also rule out oak as a workable timber under the pyro's hand, yet Day is currently personalising many kegs for wineries in the Tanunda district.

Detail of chair with surface ornamentation by Barbara Armitage

Crumbsweeper and brush by Mixo Sydenham

Tools and Technique

Strictly speaking, pokerwork is a different art form from pyrography. Pokerwork employs grooves, lines, and dots to create tonal differences in the surfaces of timber by using a woodburning tool and/or a template. Pyrography, however, is more concerned with creating designs through the creation of shadings. However, the two terms are usually used interchangeably and both rely on the same tools and techniques. The great advantage for the beginner is that the tools are neither sophisticated, nor expensive and are generally easy and safe to use.

Heated metal applied to a variety of timbers will produce a mark, and while the mark has been produced with everything from the fire poker to a heated knitting needle, today's tools have been refined somewhat. There are small butane gas torches available from craft shops which give a fairly accurate and controlled charring mark compared to earlier gas torches and benzoline burners. They are





ideal for scorching larger areas but for very fine lines and dots, and absolute accuracy, the current electric models are best.

Three tools currently available include one which is basically a soldering iron with a heated tip, an electrically heated hot wire which bends into specific shapes and lastly, what is a basic pyrographic tool with an external element close to the tip. Most of these take interchangeable tips for a variety of effects, such as those above.

Each tool works much like a pencil, however, unlike a pencil increasing pressure does not darken the mark. Instead, moving the tool slowly over the area to be burned will create a darker line or alternatively, you can turn the thermostat up. It may help to keep a damp cloth handy to ensure slow smouldering is checked. A good basic guide is a dull red colour to the point of the tool—too much heat gives a fuzzy line. The loop of wire is best for general work with a spoon point ideal for shading. Some machines offer a range of different points.

Examples of pyrography held in the Pinto collection of the Birmingham City Museum in the UK display the use of acid or hot sand to heighten the effect of the heated steel rod. Colour is another way to give the depth or highlights required.

Getting Started

For between $26 and $250 a pyrographic tool can be purchased. Other than that you'll need a surface to work on, sandpaper, a wire brush for scraping off charred wood, and some decorative ideas. Starting a file of images, both narrative and textural, is a good idea especially as most work will not be done freehand because every mark is indelible.

Once you have examined the features of the surface clean away the dust with a fine sandpaper as dust will lower the temperature of the tip of the tool. A small piece of sandpaper will also be useful for removing build-up before you start detailed work.

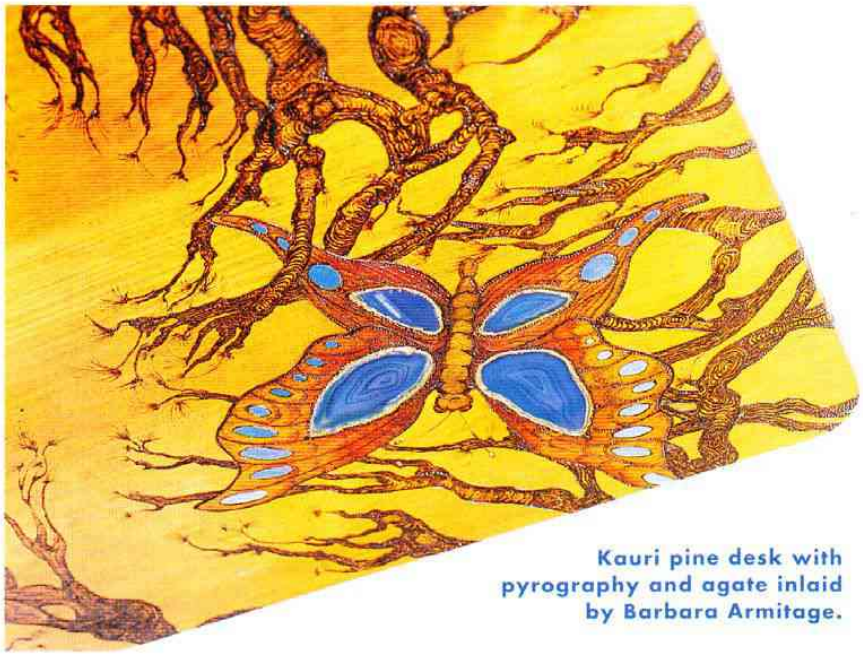
Stool with pyrography by Barbara Armitage

The boldness of lines will depend on both the size of the nib and the intensity of the heat of the tool. Creating a sampler on a piece of plywood is a good starting point and provides a good reference. Remember, however, that timbers respond differently—experiment on scraps first.

Transfer your design from paper to the surface with the aid of carbon paper. Some people enlarge or reduce their design with the aid of a photocopier. Paint turps on the back of the page and rub with a spoon, tracing the outline onto the surface to be worked. Others prefer to work freehand, building up an image by using different techniques and nibs to create contrasting surfaces.

Always start your machine on high and then gradually reduce heat. Working towards yourself will prolong the life of your nib. And remember heat settings will change with the weather—what was just right one day may be too hot the next.

Pyrography by Joy Day.



Kauri pine desk with pyrography and agate inlaid by Barbara Armitage.

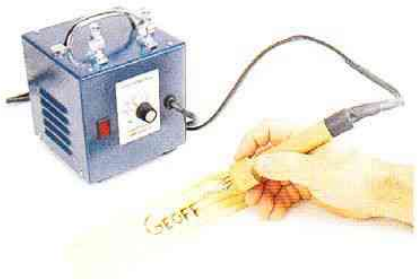
What's on the Market

Australian Pokerwork Transformer—developed by Joy Day this Australian-made 240 volt input (1.5v output) machine has a detachable handle in addition to a carry handle and pen rest. It has a variable heat setting controller, an on/off light switch. Comes with one metre each of fine, medium and heavy ni-chrome nib wire and instruction booklet. Retails for $230

Ironcore are an all-Australian made and owned success story established in the 1950s and growing since. They produce a wire model with transformer. As testimony to the *Ironcore* machine the company claims there are currently 300,000 in use in Australia, with 1000 machines sold nationally in the past six months. Retails around $200.

Janik-G4 and ***G4HW*** are English-made solid core models wired to 240 volts with 20 watts of output, they are double

insulated, do not require an earth connection and are fitted with a two-pin plug. Both offer variable heat. Model *G4HW* is a single hot wire pyrograph using a heavy duty stainless steel wire. The *Janik G4* model is a dual outlet model. There are over 20 extra points available for this model (at around $14 each), as well as the full alphabet a complete set of numerals and other symbols. Sells for around $200



NDI-Pyro Pen, another all Australian product, sells for around $140 and uses only ni-chrome wire and nibs. Three nib sizes are supplied, however, it is possible to make up as many nibs as required or preferred. It also features five heat settings, a pen handle of turned Tasmanian sassafras and a neon indicator safety light. The machine is backed by a one year guarantee.

Matson Pyrography Pen —designed and made in Australia, of stainless steel and copper construction offering 25 watts which can be plugged into any 240 volt powerpoint. Two double-ended high quality, fully replaceable brass tips are included. It sells for around $42.

Pemco is a Taiwanese-made tool which presents much like a soldering iron with 4 screw-in tips. At around $26 it's a good choice for a beginner.

Patterns

If you want to establish a little confidence before launching yourself into the fire, 73 Australiana patterns are available from Ironcore at around $3ea. Joy Day Woodburns offer 26 detailed patterns at $20ea, 200 patterns for $2-$3ea.

Suppliers

Baileys Toolbank (***Ironcore***) (03) 9897 1911

Carba Tec (***NDI Pyro Pen, Matson***) 1800 658 111

Ironcore Transformers (***Ironcore***) (03) 9480 6044 for trade enquiries and distributors

Joy Day Woodburns (***Australian Pokerwork Transformer***) (08) 85 633 540

MRH Woodworking Centre (***Ironcore, Pemco***) (07) 3283 1558

The WoodWorks, Book and Tool Co (***Ironcore, Janik***) (02) 9807 7244

MIK International (***Ironcore, Janik***) (08) 83332977

Power Tool Specialists (***Ironcore***) (02) 6280 4966

Pyrographic Equip. Manufacturers (***ND1 Pyro Pen***) trade enquiries (03) 9724 9320

Southern Woodturning Supplies (***ND1 Pyro Pen***) (02) 6280 0620

The Turnery (***NDI Pyro Pen***) (08) 8358 1400

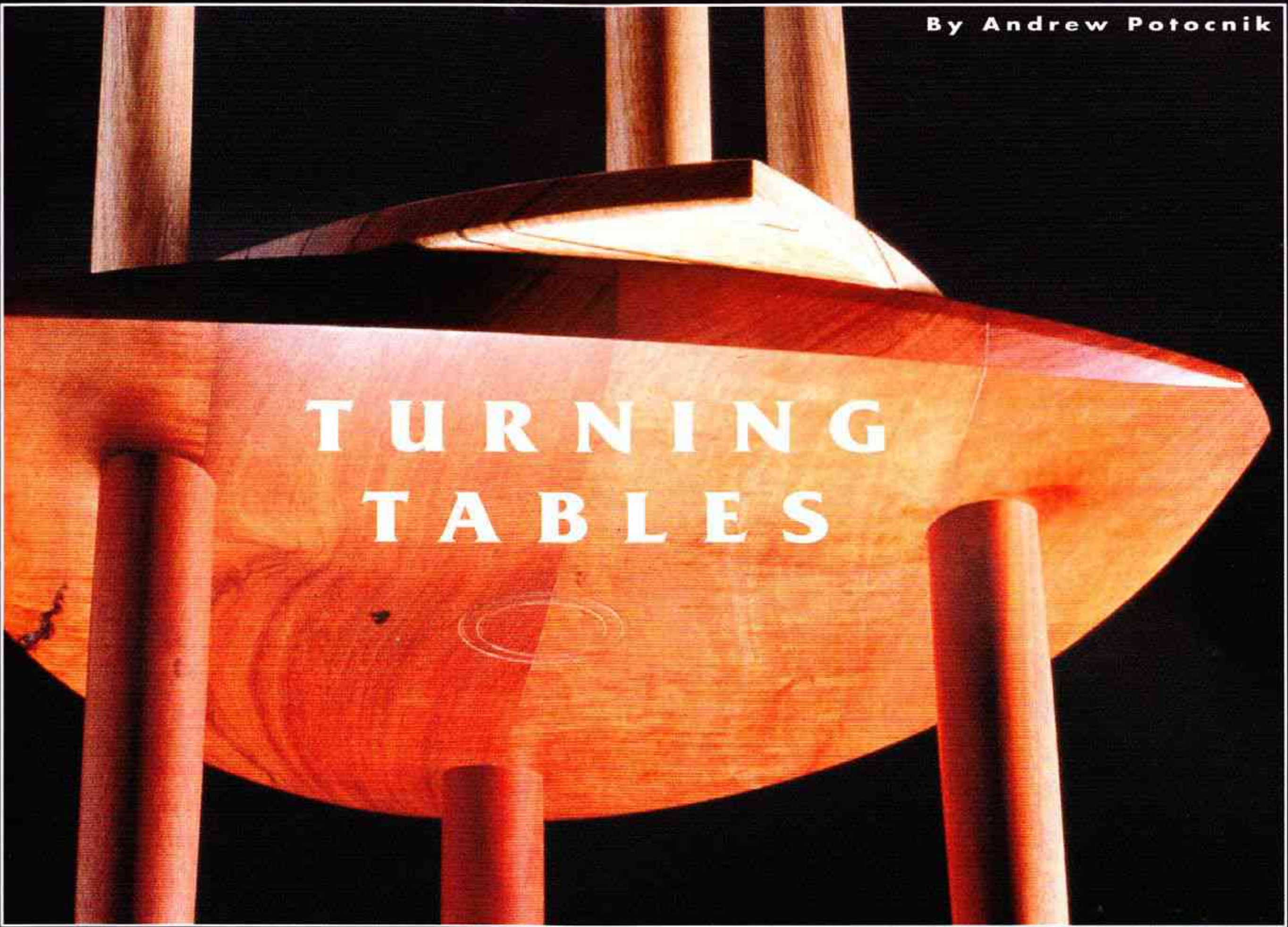
Woodman Group (***Ironcore***) see p.15

Further reading

Walsh, Helena, *Australian Pokerwork, A Guide*, Kangaroo Press 1992

Sydenham, Mixo *The Simple Art of Woodburning: A Guide for Pyrography Students, 1997, see* http://www.sympac.com.au/pyrocafe

Samples of pyrography on pp.59-60 reproduced with permission of Capricorn Link (Aust), NSW from *The Complete Pyrography* by Stephen Poole, Guild of Mastercraftsman, 1995, available through Bookshelf, p.95



By Andrew Potocnik

TURNING TABLES

Turning furniture componentry is not new, yet both the top and legs of these attractive occasional tables were turned on the lathe. Andrew Potocnik demonstrates how.

Part of my work is creating components for other people's work, which, more often than not, are required for the making of furniture. Frequently, however, I am taken by the urge to create my own pieces of furniture. True to my passion, though, turning dominates and becomes the focal technique used.

Shortly after beginning work on a possible design I realised there was potential for a number of variations, two of which I made. One is a table of natural feature grade mountain ash with turned legs, the other, made of red gum, has a turned top and legs.

My focus here is on turning, rather than joinery techniques, involved in the making of these coffee tables. Without doubt there are alternative ways of executing the designs, these solutions are merely examples.

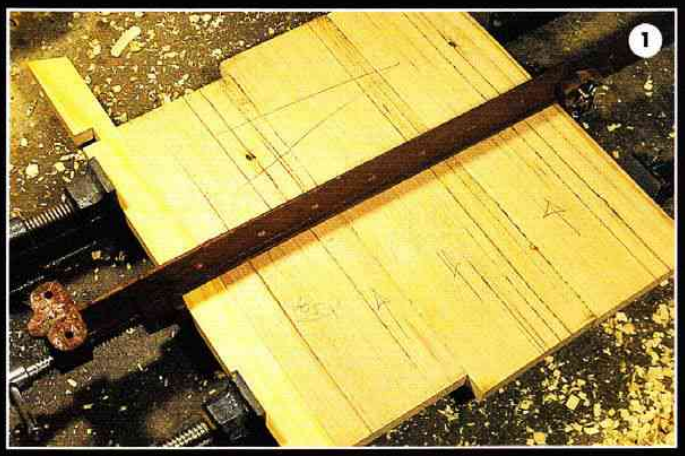
'Stiletto Table I'

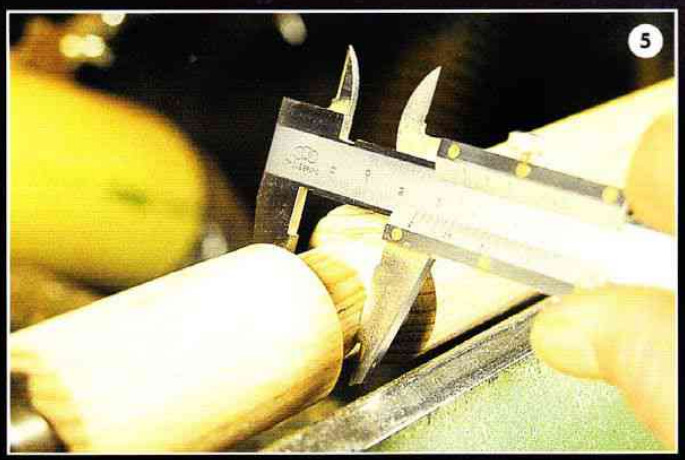
Three boards of natural feature grade mountain ash were machined to size, glued together and sash clamped for the top (photo 1). I drew lines radiating from the centre to help with the marking out of the shape and later on these were essential for determining the placement of the three legs. The top was then cut and sanded accordingly (photo 2).

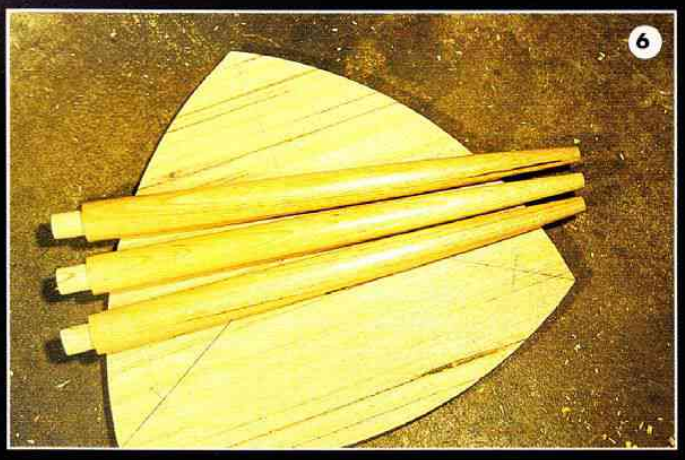
Knowing the standard height of a coffee table to be in the vicinity of 450mm, I used any object available to raise the top to that height (photo 3) so that I could gauge the required length and diameter of the legs. Proportions were thus established by eye, keeping in mind restrictions imposed by existing stock sizes.

Once the timber for the legs was cut and mounted on the lathe, the form was rough-turned to near final diameter, and the length from toe to shoulder marked and a round tenon (or spigot) was turned. I find this process easiest to complete with a parting tool (photo 4). Dimensions were checked with vernier callipers (photo 5). The remainder of the leg was turned to shape and size, then sanded. Photo 6 shows the three legs completed.

A variety of options exist for methods of attaching the legs to the table top. You need to consider the strength—for example, is a frame or reinforcement







required? Do you anticipate the top will move due to air moisture changes, or will the timber cup on account of being back-sawn? Is the top too thin for its size to carry substantial weight? These are a few of the factors influencing the nature of the final structure. Wanting my table to be simple in design and construction, I chose to join the legs directly into the top, hence the tenons on each leg.

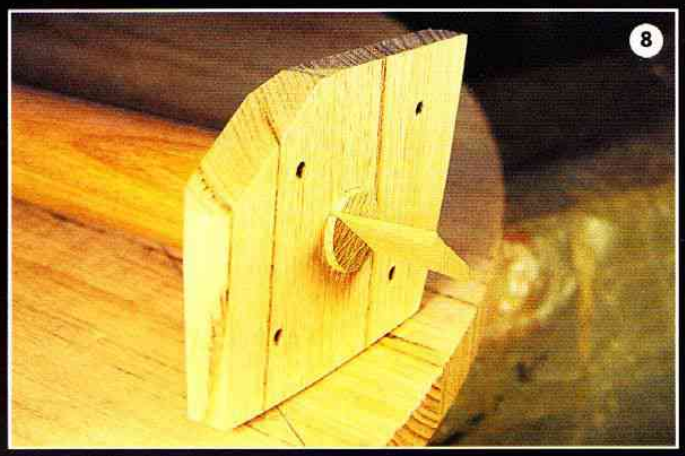
There are a couple of choices available. One method is to fit the tenon into a block which is then screwed underneath the top (photo 7). To strengthen the joint between the leg and block, cut a slot in the top of the tenon and insert a wedge (photo 8)—this flares the tenon to increase its grip in the block. Thinking laterally, the legs could also be angled into the block, giving the table another kind of balance and style. Another way would be to drill a hole directly through the top, making a feature of the exposed end-grain (photo 9).

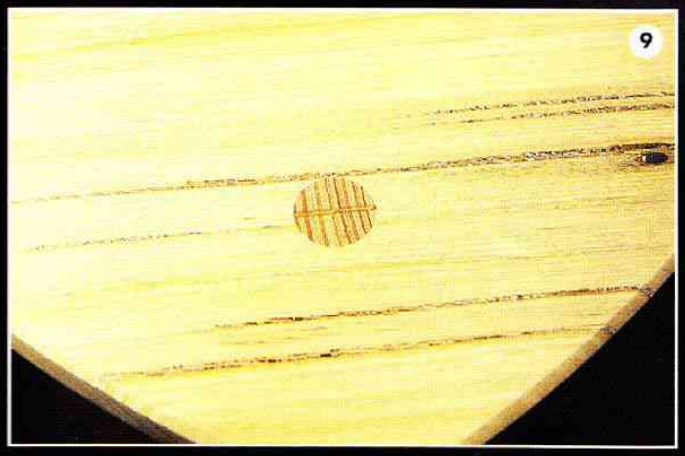
'Stiletto' Table II

In essence, this table is the same as the one described so far, however this time I relied even more on turning rather than joinery, choosing to turn the underneath of the top as well as the legs.

Once the redgum had been machined and joined for the top it was mounted on the lathe, enabling me to turn the underside. I wanted a gentle flowing curve graduating from a thicker centre to thinner edges. This would produce an interesting effect once cut to a three-sided form. To prove that the table top was turned, I cut some circular lines in the centre of the top surface (photo 10). To add more interest, I bevelled underneath the top making the exposed edge thickness vary from corner to middle of each of the three curved sides (photo 11).

Joining legs vertically into a curved





form presented me with a couple of problems, foremost being how to join a straight shoulder into a curved surface. The simplest solution I felt would be to create a rebated surface for the leg's shoulder to fit into. To achieve this I used a hole saw and chisel to produce the rebated hole with a round shoulder and flat face (photo 12). A Forstener bit would have been very handy at this point! For this step to be successful, it was imperative to line up centres of rebate and tenon holes.

Later I developed a variety of possible methods with which these designs could be developed further, especially in splaying turned legs when joined into a flat top, or joining splayed legs into a curved surface. It has probably been done hundreds of times in the last few thousand years, however nothing can take away the joy of 'discovering' a solution to a design problem!

You can't, however, lose sight of the balance needed between innovative design and what a sometimes conservative market is willing to tolerate. It you're trying to make a living from your work it is futile to create objects which don't have a market, regardless of how 'different' or 'interesting' they are.

These tables rely on a combination of clean, uncluttered lines and simple construction techniques. An exposed through tenon reduces the need for substantial frames, skirts and other supporting structures often associated with table construction. The result is an easy to construct table with few visible structural components.

Although traditional makers may well see structural problems associated with these designs, my intention was to confront conventional constructional techniques and explore conceptual and visual potential in the application of turned components to furniture. □

By Peter Collins

Practical Aspects of Gluing Australian Hardwoods

With the current renaissance of Australian hardwoods comes the need for a more specialised adhesvies technology. Peter Collins examines some of the key factors involved.

Achieving a strong and long lasting glue joint need not be a hit or miss affair, and there is no reason why a joint cannot last at least as long as the timber itself.

To achieve such a joint certain strict criteria must be met, and these are even more important with regard to some native Australian timbers. A permanent bond is in many ways a very relative thing—relative in regard to timber species, adhesive used, climatic and immediate environment.

During World War II, for example, the British had an understandably urgent need for excellent glue bonds on the timber and plywood needed for planes, ships and other machines of war. To determine the permanence of various glue joints thousands of samples were glued up and shipped to European, tropical and desert locations. Not surprisingly the results varied, and while some samples survive to this day others rapidly disintegrated.

In Australia both the nature of our climate and the properties of our native timbers vary widely. The behaviour of our better known timbers with regard to adhesion is documented, but 'newer' species such as spotted gum, brush box and blue gum have different demands.

The challenges of gluing Australian hardwoods are far greater than those of gluing European or North American timbers, and require, accordingly, a different technology.

On the occasions that overseas visitors tour my laboratory they are quite amazed to find that we regularly glue wood species that may be 60% or greater in density than their high density species. In addition, common adhesives successfully used in their countries may fail dismally under Australian climatic conditions. I was recently in Uruguay where they are undertaking the processing of locally grown eucalypts into laminated building products. Their initial attempts at using European and North American adhesive technology on the eucalypts were dismal failures. The wood literally ripped the glue to bits.

The choice of any adhesive needs to be related to its 'exposure hazard' and requirements for adhesives to be used in non-structural applications are specified in Australian Standard AS2754.3-1988. Perhaps the biggest problem to be faced in any wood gluing operation is ***water*** in either the wood, glue or atmosphere. Other problems may relate to wood surface quality, wood extractives, lack of cramping pressure, wood temperature and curing temperature. Let us look at each of these problems in turn and ways to overcome them.

Wood Moisture Content

Most wood users have a reasonable understanding of wood moisture content and the fact that wood is affected by surrounding atmospheric conditions. How many people, however, fully comprehend the enormous swelling and shrinkage forces that may be generated by changes in wood moisture content either due to moisture content equilibration after kiln drying, or seasonal moisture content cycling and its effect on a glueline?

Let us consider two quite different timbers, radiata pine and spotted gum of approximately 500kg cubic metres and 1000kg cubic metres air dry density respectively. The radiata pine could be expected to exert a swelling pressure due to changing moisture content of approximately 1 Mpa, whereas the spotted gum is likely to be 10 times greater—1000 kilograms per square centimetre! This force may have to be resisted by the adhesive!

Thermoset adhesives such as urea formaldehyde, resorcinol formaldehyde and epoxies can resist this movement—but, in cases of extreme moisture changes or moisture content differentials between adjacent pieces of wood, stress relief is likely to result in timber splitting. With thermoplastic adhesives such as PVA, glueline slippage will be the likely result—either outcome being undesirable.

Consideration also needs to be made that wood species have differing radial, tangential or lengthwise moisture induced movement. Many people mistakenly believe that kiln dried hardwoods have a uniform moisture content of approximately 12% and yet this is not necessarily true. Wood is a natural product so we have to live with some variability in its final moisture content from the kiln.

Uniform moisture content can be achieved by stickering kiln dried wood out under cover and providing good air circulation. Fine furniture manufacturers have long recognised the importance of this procedure and how it benefits both ease of gluing and future product stability under seasonal climatic changes.

Wood Surface Quality

Most modern adhesives are 'close contact' adhesives. Surfaces to be glued need to be brought into close contact for the development of a thin strong glueline. The ideal gluing surface is machine planed (without knife burns), as opposed to sanded surface where adhesive bonding may to some extent be to the 'loose' surface.

Wood Extractives

Many Australian hardwoods contain extractives that may make it difficult to achieve strong reliable bonds, especially with adhesives that are somewhat alkaline in nature. Gluing is usually

easier, for example, with the more neutral 'pure' resorcinol adhesives, than with the more alkaline phenolresorcinol types. However, there is no doubt that with species such as spotted gum, and many other high density species, wood extractives are a problem, and that better gluing results are obtained if gluing is carried out on *very* freshly machined surfaces with any type of adhesive.

Difficult species thus require very definite gluing procedures. Once machining has been completed the adhesive should be immediately applied. Even a wait of a few minutes with some species can be enough to lose the initial 'clean' surface.

Cramping Pressure

Pressure application of up to 1.4 Mpa is a requirement for the successful gluing of many hardwoods. This will overcome the effects of the shrinkage of water-based adhesives during their drying or curing cycle, as well as the need to 'iron out' any cupping or bowing of the wood itself. The appearance of a continuous line of squeezed out beads of glue is a good indicator that sufficient pressure has been applied, provided that strict adherence to the manufacturers' recommendations regarding application rates, open time and closed time prior to pressure application were followed.

Wood And Curing Temperatures

Many adhesives (especially the thermosets) undergo a chemical reaction resulting in a high strength polymerised rigid structure at final cure. This chemical reaction may be very temperature dependent; higher temperatures resulting in faster and more complete curing. During the cooler months of the year lower temperatures often result in undercured poor quality glue joints.

The temperature of the glueline during cure is most critical. Because of the very good insulating properties of wood this may be very much lower than air temperature. Prewarming timber to 20-25° and maintaining air temperature at this level will greatly benefit the gluing higher density hardwoods.

Other Factors

Ideally timber of the same species should be joined, even more ideal would be that species used were sourced from the same forest area. Brushbox from different states, for example, can vary considerably in colour, density and ease of gluing.

Grain orientation of individual boards should be the same and timber to be joined should ideally be sawn in the same way. Problems may occur where, for instance, backsawn and quartersawn boards are joined. Always follow the recommendations of the adhesive manufacturer and check the shelf life of the product.

Peter Collins is Principal Experimental Scientist, CSIRO Forestry and Forest Products, with more than 30 years experience in wood composites and wood adhesives.

Adhesives Suppliers

A V Syntec *AVS Adhesives* (07) 3271 3411, (02) 9744 3144, (03) 9798 4944
Anton Gerner Furniture *Garrett Wade* (03) 9813 2422
Bailey's Toolbank *Bailey's Glue* (03) 9897 1911
F.N.Chittams *Franklin Titebond Wood Glue* (03) 9853 7497

By Dinah Hall

TREE GIANTS

A brief review of some of the massive trees of the world shows that these are the last of the enormous trees of the forests that ruled a pre-industrialised world. Many of today's giants were once secondary to even larger trees since logged. Spanning in some cases millenia, many of these trees have existed for much of recorded human history. In terms of size and longevity, they hold a unique place in space and time.

Sequoias

The narrow fog bound strip of North American coastline from the Oregon border to the Big Sur coast plays host to a remaining pocket of trees said to be among the world's biggest. These mighty giants, known as redwoods or sequoias reach up to the sky for over one hundred metres in their natural state. Since commercial logging began in the 1850s, 90% of these forests have disappeared. Of the remainder only a little is preserved as national park.

These temperate rainforests are the homes of trees such as *Sequoiadendron giganteum*, also known as the Big Tree, Mammouth or Wellington Trees. These trees have an unusual spongy bark, so soft it can be punched without injury, and highly durable, straight grained, light and soft timber which is not necessarily easy to work.

These dwindling giants have so captured people's imaginations that individual trees have been assigned names. For example, the General Sherman Tree of California's Sequoia National Park is said to be the world's biggest tree at 3000 years old and estimated to mass in at 2000 tonnes (including the root system). It stands at nearly 84 metres high with a diameter of 11m and a girth of 31m. With bark as deep as 610mm in places, the tree is estimated to contain 606,100 superfeet of timber.

Another redwood, the coast redwood (*Sequoia sempervirens*) is also under threat from overdemand for redwood timber. More easily worked is the soft, fine grained timber of this tree which grows to similar mammoth proportions—up to 120m high and up to 10m trunk diameter. Indeed, it is a Sequoia sempervirens which is listed as the world's tallest living tree measuring in at 111.56 metres in May 1993.

Douglas Firs

The giant redwoods give way to the Douglas firs /false hemlocks/oregon (*spp. Pseudotsuga*) of which there are 20 species. These softwood giants constitute approximately one half the standing timber of the western forests from Mexico to British Columbia. In their natural state they can reach up 100 metres though more commonly they reach 60m with 2m diameter trunks. One entry in the Guinness Book of Records, however, highlights one at-

White Gum (*Eucalyptus viminalis*) in Tasmania. Photo: courtesy Forestry T

titude to these beautiful giants. In 1950 a 67.36m Douglas fir (*P.menziesii*) was cut down to ensure a Seattle shopping centre would get a place in the Guinness Book of Records for the world's tallest Christmas tree! Much of the oregon being recycled in Australia is originally from these mighty forests.

Western Red Cedar

In the same regions, British Columbia, Oregon, Idaho and Montana, Western red cedar (*Thuja plicata*) has grown to similar huge proportions often exceeding 65m at maturity and 4m in diameter. This fine textured softwood has been favoured for its resistance to decay and has been widely used for house cladding, external joinery and window frames. There is practically no secondary growth as it is a slow growing tree.

In 1994 over 40% of Australia's imported timbers came from the US or Canada and was largely made up of the red cedar. Some is grown in plantations in Victoria and a little is imported from plantations in New Zealand.

Madrone

This titan of Canada and Western USA (*Arbutus menziesii*) grows to 40m but spreads its enormous branches over an area up to 1,000 square metres. The beautiful timber is difficult to dry but finishes to a remarkable degree of smoothness. The burl it produces at its base has been used for veneer work. Interestingly, it is best known as the favoured source of charcoal for making gunpowder.

Mountain Ash

Australia's forests bear some of the world's biggest and best trees. A mountain ash or swamp gum (*Eucalyptus regnans*) found at Victoria's Mt Baw Baw in 1885 is believed to have reached a height of 143 metres. Indeed, it is a Tasmanian mountain ash which qualified as the world's tallest living hardwood when it measured 98.8m in 1962. Apparently the top has since blown out reducing it to just 88m—still a giant in any language. This prodigy of the Styx River area in Tasmania, is reported to be about 360 years old with a trunk diameter of 5.2 metres.

These shaft-like trees, usually 50-90m high and 3m in diameter, favour the high rainfall country and congregate in pure stands in the richer soils of the mountain valleys. Mountain ash is of great economic importance to Tasmania and Victoria, and, along with Alpine Ash (*E. delegatensis*) and messmate (*E. obliqua*) is marketed as 'Tasmanian oak'.

The infamous 'Prison Tree' in Derby, Western Australia.

Messmate

Growing in the cooler temperate regions of Victoria, Tasmania and even South Australia (especially the Mt Lofty ranges) *Eucalyptus obliqua* reaches 90 metres up into the blue skies. With a trunk diameter of 2-3m it has been a highly sought after for its strong, durable timber.

White Gum/White Knights

The drier, more open forests from the Mt Lofty ranges of South Australia through the cooler areas of Tasmania and Victoria to the tableland districts of NSW play host to these towering trees. Standing with the authority of up to 90 metres *Eucalyptus viminalis* is valued for its timber which polishes to resemble English oak. So-named for the smooth white bark that covers almost the entire trunk, the commerical use of white gum is limited to some furniture and internal fittings as the timber is brittle and difficult to dry.

Red Cedar

This handsome giant once graced the rainforest from south of Sydney to Cape York Peninsula, however, is now extremely rare in its natural environment. The stately 80m high *Toona ciliata* with buttressed trunks up to 3m wide is still found in Papua New Guinea where it is now being logged. The distinctive odour and growth rings of this reddish timber were favoured amongst furniture makers. Though easy to grow the red cedar moth tends to attack the tips making it difficult to grow a straight timber tree.

Hoop

From northern NSW to North Queensland hoop (*Araucuria cunninghamii*) has dominated the rainforests, growing up to 70 metres high. Many of these giants were felled for fruit boxes (especially in the in the 1950s), weatherboards, interior panelling (1930s-1960s) and in clearing for land selection around the turn of the century.

Plantations were established as early as the 30s. Today's giants were passed over in this phase of cutting, but now stand as monuments to the former rainforests in which they once reigned. These have gained the personality of old friends, such as 'Big John' which grows on private property near Boonah in Queensland. Scaling this 70m precipice has become the challenge for many visitors ex-Brisbane.

Hoop doesn't regenerate well and it is official policy not to continue to cut in its natural state. Some hoop is sold as 'salvaged' timber from the forest floor but in some places tree poaching is still considered 'fair game'.

Moreton Bay Figs

No discussion of the giants would be complete without mention of the sprawling *Ficus* species of which there are 800 worldwide. They are characterised by the fact many start their lives as epiphytes on other trees and when their roots reach the ground they completely engulf the host tree adding to the spectactular texture of the dense forests. Moreton Bay figs (*Ficus macrophylla*) were widely planted by

Tingle tree, WA, photo courtesy CALM

early settlers as shade trees. Those in parks and gardens often are as wide as they are high (50-60m) and are pedestrian reminders of pioneering vision. The exotic banyan (*Ficus benghalensis*) has been known to cover areas up to a hectare in size as a single tree.

Yellow Tingle

Across the Nullarbor to the south-east corner of Western Australia exists a unique high rainfall area (1300mm annually) within the Walpole-Nornalup National Park. There, within the Valley of the Giants and the Ancient Empire, is an ancient stand of buttressed tingles, some with diameters up to 16 metres. One photo in the Battye Library depicts a family picnic aboard the family Ford (circa 1920s) actually parked within the buttressed roots of one of these giants.

The name of these colossal monoliths whose bole of up to 15m may taper upwards to around 70 metres derives from local language ('tingle tingle'). A similar sensation would be felt walking through the canopy and looking down from the Tree Tops suspended footbridge 40m from the national park forest floor.

Yellow tingle (*Eucalyptus guilfoylei*) yields a hard, durable termite resistant, yellow-brown timber for general structural purposes. Red tingle (*Eucalyptus jacksonii*) is less plentiful but similar tree yielding a pale red to reddish timber and is found growing alongside yellow tingle, marri and karri.

Karri

Dominating vegetation wherever it grows, karri (*Eucalyptus diversicolor*) rivals mountain ash for the honour of the country's tallest hardwood. These haunting giants have been said to grow up to 110m high. One felled in Pemberton in 1901 was recorded at 87m. Today's tallest karris are 85m high with trunks up to 3m in diameter. Limited in distribution to the very high rainfall area of Albany to Cape Leeuwin in Western Australia, the smooth and straight trunks yield clear lengths and large sections. The description diversicolor refers to the oranges, yellows, greys and whites that are revealed as the giant sheds it bark.

Despite the limited habitat of the majestic karri giants, it is the second most important timber in WA and up until WWII it was exported in large quantitites for building, flooring and

Representatives of Western Wood Products at the base of the 'Chandelier Tree', a sequoia, in California, USA.

sliding beams for mines. Providing larger lengths than any other hardwood it has been used extensively in plywood for concrete formwork. Not an easy timber to work; however, small quantities are marketed in eastern Australia for flooring and roof trusses.

The commercial forest area between Walpole and Manjimup in pure stands of tall open forests is currently being cut and replanted at an average of 1700ha per annum. According to CALM which oversees the management of the karri forests, 60% of karri is being chipped with 40% going to the sawmills where square sawn board recovery is just 43%. It is estimated that 80% of the original karri forests remain with 46% in national parks and nature reserves.

Boab, Boabab

Far from the rainforests and its remnants other giants squat close to the warm red dust of the Kimberley . These aristocrats of the North West's monsoonal region, reach just 14 metres in height but spread to 25m in girth. On these stark landscapes actual dimensions are almost an irrelevancy as the beautifully grotesque creatures impose upon the view.

The boab (*Andansonia gregorii*) as distinct from seven other species, one found in Africa and six in Madagascar, provide clues to the history of the region. Arab traders, travelling in dhows kept scurvy at bay by feasting on the ascorbic acid rich, pithy fruit. The trick was probably learnt from the locals, the Bardi who call this tree 'larrgid' and have farmed it for many years, carefully marking the number of fruit taken from each tree. The fruits are now carved as artifacts.

These were used infamously in Western Australia as holding prisons when Aboriginal people were rounded up as the region was being 'opened up' for pastoralists in the late 1800s. The 'Prison Tree', perhaps most haunting of all the giants, is over 1000 years old, 14m in girth, and held up to 20 prisoners chained together at any one time within its hollow interior.

The list of tree giants surveyed here is by no means exhaustive, but serves to illustrate their unique place within the ecology of the earth and human history.

Stringybark (*Eucalyptus obliqua*), photo courtesy Forestry Tasmania.

By Chris Parker

A RECYCLED TIMBER KITCHEN

Chris Parker built his kitchen from recycled timbers to utilise an undervalued resource. The end result was a pleasing finish and a low financial outlay.

Three things motivated me to make this timber kitchen. Firstly, my developing love for the natural beauty of Australian hardwoods, in particular the magnificent colour and figure I was finding when planing the grey weathered layer off old 4 x 2's in second-hand timber yards. I wanted to incorporate these hardwoods into a feature piece of cabinetry in my home. Secondly, I have always loved timber kitchens, especially those with the warmth and beauty of timber benches. And lastly, with only a $1000 budget, my wife and I needed a new kitchen in our recently purchased house.

In this era of massive destruction of our global forest resources, the whole notion of reusing timber that was going to be burnt, buried in landfill or left to rot, was also not insignificant in my decision to use recycled timber. With this in mind (and perhaps in heart) this choice was quiet satisfying.

The timber purchased from recycle yards, along with bits and pieces I had lying around, gave me an assortment of species. The benchtops were a mixture of rich red Australian hardwood 4 x 2's (notably jarrah and Sydney blue gum). I used old Tasmanian oak tongue and groove floor boards for the cupboard door frames. The door panels were jarrah; the shelves used oregon tongue and groove boards. The trims, plugs and knobs were variously made from coachwood, Tasmanian blackwood, red cedar, brush box and silky oak.

My workshop is not professionally equipped, however I had what I would consider the minimum tools essential for this project, including a table saw (I used a *Triton Mark III*), a 6" jointer, 12" portable thicknesser, electric sander

(I used a belt sander, but a powerful orbital would be preferable), drill press and plug cutter, metal detector (the hobby type), router (preferably mounted under a table) and a biscuit joiner, which I borrowed. Although I could have crosscut on the tablesaw, I borrowed a compound mitre drop saw for the project. Having this set up in the kitchen was a great advantage.

Buying Recycled Timber

More and more second-hand building material suppliers are springing up all the time and most deal in softwoods, particularly oregon. Hardwoods are available in the form of old flooring bearers and joists, ceiling joists, studs and some floor boards.

Usually the oregon is sold de-nailed, however the hardwoods come 'as is'. Most of the timber is in a very seasoned and weathered state. Consequently, when I go in search of Australian hardwood for joinery I take a small bench plane, a hat and sun cream and allow a couple of hours searching for the sort of grain and colour I like. I am always surprised at the natural beauty which lies beneath the grey exterior of these construction timbers.

Preparation Of Timber

The first task in preparing the timber is to get those darn nails out. The nails were most probably driven in when timber was wet and the wood fibres have subsequently shrunk around them. Some of the metal may also be quite corroded. This task requires patience, a claw hammer and a reliable set of pincers.

Before cutting the timber to approximate lengths and passing two alternate sides over a jointer ready for the table saw, you must be absolutely certain that there are no nails lurking under the surface. I use a metal detector for this task. Mine is not an expensive one, but with a little fine-tuning it performed the task well—I didn't find one nasty surprise while milling. After sawing to the desired sizes, a light pass through a sharp thicknesser was all that was required to dress the timber.

Carcase Construction

For the floor cupboards, I decided on a solid timber frame construction that relied on the existing walls of the kitchen for support and rigidity. This would suit my budget constraints as well as my level of skill and tooling.

I had previously purchased some recycled radiata pine 4 x 2's and, although they were larger than necessary, they were easy to work with and their size added to the rugged and rustic aesthetic of the kitchen. They were painted a subtle grey, as radiata pine was not sympathetic with the other timbers used. The overhead cupboards were plywood carcases screwed to the wall studs. To cut costs, I bought second quality plywood and painted it the same colour as the walls.

Benchtops and Shelves

To gain the rugged effect I was after, and to highlight the colour and figure of the machined recycled hardwoods, the benchtops were made from 4 x 2's dressed and laminated edge to edge. Due to cost considerations I used building adhesive (instead of epoxy) and a series of thread rods sitting in holes drilled through the middle of the members. Over a length of two metres I placed five equally spaced rods. Because of the variety of species, and hence colour grain and texture, patience and creativity was needed when

arranging the order of the laminates. The shelves were constructed from old 3" wide tongue and groove boards. A light pass through the thicknesser showed these boards to be ideal for use inside the cupboard due to their lighter colouring.

Making The Doors

The frames of the cupboard doors were made from 3" Tasmanian oak floor boards. These were chosen to contrast with the deeper reds and browns of the panels and benchtops. The frame members were butted and biscuit joined. The panels in the doors were jarrah 4 x 2's, milled down to 40 x 10mm with two bevelled edges. These were then cut to length and placed into 10 x 10mm rebates cut in the back of the door frames on the router table. The slats were pinned (not tightly) into place with panel pins to allow for any movement due to varying humidity.

Finishing

All trimming on bench edges and fixing of benchtops to carcases was done with screws and plugs. The plugs gave me an opportunity to add to this smorgasbord of Australian timbers with some more of my favourites—NSW coachwood, silky oak, Australian cedar and Sydney redgum. The exterior ends of cupboards were panelled with 75 x 19mm blackbutt bull-nose decking that was ripped to halve the amount of boards required. The cupboard knobs were turned from Tasmanian blackwood.

Consideration was given to the amount of wear, the colour and the lustre required when when the finishes were chosen. Benchtops require a hard wearing oil-based polyurethane, however a gloss surface (the hardest wearing) was not sympathetic to the aesthetic of the kitchen. I settled for an oil-based matt polyurethane realising that I may have to resurface it more often.

It is important to seal both the top and underside of a benchtop to prevent unequal acceptance of moisture. On the cupboard doors the combination of not wanting the timbers to darken significantly and the lower requirement of wear made a water-based polyurethane an obvious choice. The same finish was also used on the existing cork floor.

The many positive factors in this style of construction—the recycling of used timbers, the showcasing of Australian hardwoods, the ease of construction and the extreme cost effectiveness—made this one of the most satisfying projects I've ever completed. □

TOOLS FOR TURNING WOOD

Which gouges, chisels and scrapers do you really need? Richard Raffan writes...

Sometime early in January 1970, I secured an apprenticeship in a woodturner's small country workshop. He told me I'd need a few tools and that Buck and Ryan in London was the place to go. So, on a cold winter's day, I drove the 180 miles to London eager to confront what was rumoured to be the biggest range of woodturning tools then available in England. I had set aside some cash for the establishment of my new career, so I spent freely and enthusiastically, purchasing a magnificent range of gouges, chisels and scrapers: I still have some of them unused, in mint condition. Like so many novices, I found it very easy, through ignorance, to buy tools which would never be used.

I have had many students come along after struggling with a bargain set of cheap tools. With such tools turning even the best of woods is difficult because the tools never hold an edge for more than a few seconds. These would-be turners should have bought fewer but better tools. The aim of this article is to help you decide which tools you are going to need for each aspect of woodturning which interests you.

Decisions concerning which gouges, chisels or scrapers you buy should be based on what you are intending to turn. Woodturning can be divided broadly into facework (bowls, platters, table tops), centrework (spindles), and end-grain hollowing (goblets, boxes), which is an extension of centrework.

Wood is generally cut most cleanly when the portion of the edge actually cutting lies at about 45° to the wood's surface. Consequently tools have evolved which enable you to present the cutting edge in different situations without too much nervous strain or physical stress; thus skew chisels are superb for turning spindles (where the grain lies parallel to the lathe axis), but you risk a severe accident if you try to shape a bowl using the same tool.

Test The Metal

Steels can be carbon steel or high speed steel (HSS), but while carbon steel tools are available, the use of high speed steel for woodturning tools is now almost universal. Stamped HSS on the blade, manufacturers claim the sharpened edge of such a tool lasts at least six times as long as a similar edge on a carbon tool. High speed steel is designed to withstand high working temperatures, which means that careless grinding which 'blues' an edge (and ruins a carbon edge) has little or no effect on an HSS tool. This is a real boon for anyone having problems grinding their tools.

The steel on new tools should shine. Some tools have a matt black or gunmetal finish which looks smart enough, but it doesn't help you to achieve the ultimate cutting edge. The upper surface of a scraper or the flute of a gouge needs to be polished. Matt surfaces can be honed, but often this reveals a pitted surface. This raises questions as to whether the real reason for a matt finish is to disguise imperfections on a tool—I tend to avoid tools with matt black or gunmetal finish blades.

Some manufacturers now offer a very flash gold gouge: the gold is actually a titanium nitride coating said to produce an even longer lasting edge. I've not

found these tools superior to standard HSS.

Some manufacturers aim to save you money by offering a carbon or mild steel tool blade with a replaceable tip or a high speed steel insert. Both these options are very poor value with there rarely being enough tip or insert to grind some of the more useful edge shapes. This limits the use to which the tool might be put, but also the replaceable tips are quite expensive and soon ground away, so all-in-all they are worth avoiding.

Handles

Tools can be bought with or without handles, but why any woodturner would buy a wooden handle when they can make their own is beyond my comprehension. Manufacturer's handles have two disadvantages. They tend not to fit your hand quite as you might like: in my case they're mostly too big, so if I get a manufactured handle the first thing I do is re-turn it to fit my hand. More importantly, manufactured handles are identical: they might look nice in catalogues on on a tool rack, but it's very difficult to keep track of which tool is which on a bench scattered with shavings. A variety of tool handles makes the tools easier to identify and the work flow along much more readily as a result.

These days a number of small manufacturers of tools are offering weighted metal handles made of aluminium tube, often plastic coated, or hexagonal extrusion. I love the latter because they don't roll around on the bench and I am fortunate that those I have collected are different colours which aids identification. These handles were popularised by Glaser Engineering in the USA who use them on what must be regarded as the Formula One of woodturning tools. They have a price tag few turners feel they can justify.

Which Tools To Buy

A typical turner starts out with the intention of making a few bowls, goblets, lidded boxes and maybe turning a spindle or two which will be incorporated into a table lamp or piece of furniture. If your interest leans towards facework and bowl turning you can probably get by on centrework without a skew chisel. But a spindle turner who wants to make the odd bowl will need to invest in a bowl gouge.

There are all kinds of tools available for specific jobs: big gouges for roughing down centrework, tiny skew chisels and still smaller scrapers for miniatures, bowl busters, hook tools and all manner of scrapers for hollow turnings. Remember there are a lot of manufacturers and salespeople out there desperate to separate you from your hard-earned dollars who know with absolute certainty that a specialist tool is essential for every job.

You don't actually need micro-tools for most miniature work or even to turn on the increasingly popular mini-lathes. And you don't need a big spindle roughing gouge unless you are in production as a spindle turner or a tool junkie.

Below are the groups of tools recommended for beginners with an additional list of nice-to-haves if your budget can justify the outlay or you decide you want to get serious.

For Between Centres Turning

You will need the following (see photo 2)

12mm shallow gouge

This incredibly useful all-round tool should be in every turner's kit. It should be fingernail ground and used to rough square section blanks to round, and to detail all manner of coves or even beads. In addition you will be able to use it on popular projects such as eggs, twig pots, and goblets, as well as for hollowing endgrain and turning beads and small detail on facework.

20mm skew chisel

Grind the edge to a slight radius to make this tool less aggressive and reduce the severity of catches. This is the basic tool for spindle work: use it for roughing down small section blanks (up to 40mm square), turning beads, smoothing cylinders and shear cutting endgrain. Avoid oval skew chisels: although excellent for planing cuts and turning beads, they're difficult to grind and near useless for a whole range of peeling cuts because they cannot lie flat on the rest.

Diamond parting tool

Parting tools come in a variety of shapes and sizes. 'Diamond' refers to the shape, which should be checked carefully to ensure that each facet is machined equally. Avoid fluted parting tools: they'll cut up your tool rest.

Only three nice-to-haves are needed to complete a spindle turner's kit (photo 3): a 25mm shallow roughing gouge ground straight across, a 12mm skew chisel and a 9mm shallow gouge for small detailing. For turning newel posts, you would require a larger 30mm skew chisel rather than the small.

For Endgrain Turning

In addition to the basic range of spindle tools above, photo 4 shows the tools you will need:

20mm square end scraper

This will be less aggressive in use if the edge is slightly radiused, ensuring the left corner remains about 89°-90°. Use it for flat bottomed holes in containers.

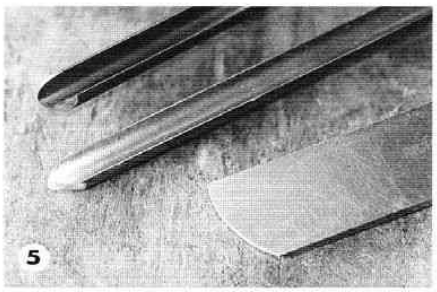
20mm round nose scraper

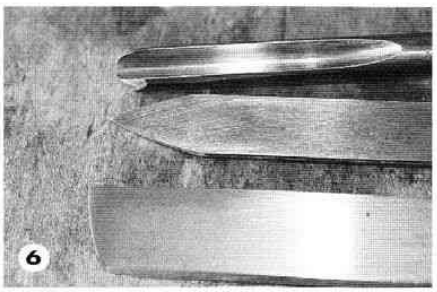
Grind this asymmetrically with a long curve to the left. The bevel should be 45° on the end, getting steeper towards the left side where it should be around 80°. Use the round nose for all internal rounded surfaces.

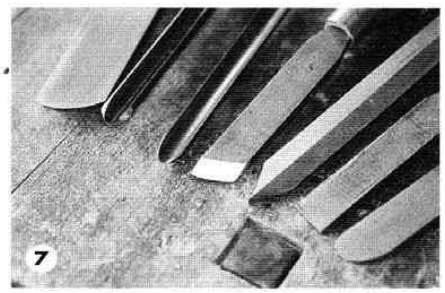

2


3


4







For bowl turning and facework

See photo 5

10mm deep fluted bowl gouge

A strong gouge designed to work well over the rest when hollowing bowls. Used for hollowing bowls, it's capable of leaving a very clean surface. Excellent for finishing cuts on external profiles.

12mm shallow gouge

This is the tool no kit should be without. It is the same tool recommended above for spindle work, with a fingernail ground edge. This is the best tool for externally shaping bowl profiles, detailing around a foot or turning beads. It can be used to take finishing shear cuts, some hollowing, and then on its side as a shear scraper.

35mm radiused heavy scraper

Use for refining gouge cut surfaces on both internal and external bowl profiles, and to smooth flat surfaces like table tops or breadboards. Use also for shear scraping on external profiles. Avoid round nose scrapers for bowls. Use as broad a radius as possible inside the curve you want to cut, but only a small portion of the edge at one time.

Complete your bowl turning kit with a 16mm Superflute bowl gouge, a 25mm spear-point shear scraping tool, a 12mm shallow gouge for small detailing, and another heavy scraper (photo 6). Scrapers can be bought ready shaped, but for shallow radiused tools consider grinding your own from square end blanks. Scrapers, like all other tools, can be ground to suit your own needs: the manufacturers grind is only to set you in the right direction. Spear-points are only used close to the rest so can be ground from elderly skew chisels or scrapers too short to be of practical use elsewhere.

Starter Kit For All-Rounders

If you'll be doing a little bit of everything, this is your basic kit (photo 7).

10mm deep fluted bowl gouge.
40mm radiused heavy scraper.
12mm shallow gouge—fingernail ground edge.
20mm skew chisel.
Diamond parting tool.
20mm square end scraper.
20mm round nose scraper (asymmetric grind)

To which you can add, as finances allow, the following:

16mm Superflute bowl gouge
25mm spear-point shear scraping tool
20mm shallow roughing gouge ground straight across
12mm skew chisel
9mm shallow gouge for small detailing
2 scrapers to suit your needs

With these gouges, chisels and scrapers you can do just about anything within the bounds of traditional wood turnery, including not too radical hollow forms. But where do you find them?

Where To Buy

The boom in woodturning has ensured that every hardware store offers some form of lathe and basic tool sets. However, a much better source is one of the numerous specialist retailers catering specifically to the needs of woodturners. These businesses are all over the place, often owner-occupied by woodturners who now sell tools rather than products from the lathe. They know the tools and how to use them and many can offer tuition to get you started. You will find that good woodturning tools are expensive, but you should remember that they will last and, more importantly, do the job.

When buying scrapers, be prepared to alter the shape of the edge to suit your particular needs. I typically adapt all my tools. Don't be afraid to change the grind on any of your tools if you think it will improve the cutting performance: there's no such object as the perfect tool.

Remember also that most cheap sets of tools never give a novice turner a chance to experience the joys of the craft. It is better to own three good individual tools than a fancily boxed set of six or so which cannot hold an edge. Avoid boxed sets of tools altogether, even those put out by the best known names in the business: they all contain at least one tool you'll never use.

Most of the finest woodturning tools continue to come from Sheffield, the traditional home of fine steels where the names to look for are *Henry Taylor*, *Robert Sorby* and *Ashley Iles*. Other Sheffield manufacturers are said to use the same bar stock and manufacturing techniques as the big three and although the tools work as well, the finished product tends to be somewhat rougher. *P&N* tools offer the only serious locally manufactured competition to the Sheffield masters. *Henry Taylor* tools are the best finished by far.

Remember too that tools fresh from the manufacturer need sharpening and will need re-sharpening at very regular intervals (see AWR#12).

Suppliers of Woodturning Chisels

Baileys Toolbank (*Robert Sorby*) (03) 9897 1911
Bunnings Warehouse (*Marples*) see p.3
Carba-Tec (*Henry Taylor, P&N*) 1 800 658 111 Qld, 1 800 653 777 Vic, 1 800 683 583 Nsw
Hare & Forbes (*Hafco, Record*) see p.9
JNU Int'l (*Robert Sorby*) Tel 015 832 464 see p.31
MIK Int'l (*Robert Sorby*) (08) 8333 2977
MRH Woodwork Centre (*Ashley Isles, Record, Robert Sorby, Woodcut*) (07) 3283 1558
Power Tool Specialists (*P & N, Record, Robert Sorby*) (02) 6280 4966
Promac Australia (*Ashley Isles*) 1800 773 267, (07) 3279 4811
Record Hand&Power Tools (*Record*) (02) 9748 6800
Southern Trade Supplies (*Henry Taylor, Record, P&N*) (02) 4869 1322
Southern Woodturning Supplies (*Crown, Henry Taylor, P&N, Robert Sorby*) (02) 6280 0620
The Turnery (*P&N, Record, Robert Sorby, Woodcut*) (08) 8358 1400
The Wood Works Book & Tool Co (*P&N, Robert Sorby*) (02) 9807 7244
Woodman Group (*Henry Taylor, P&N, Robert Sorby*) see p.10

PRODUCT REVIEWS

Air Press and Cloudmaker Vacuum Veneering Systems

Reviewed by Anton Gerner, furniture maker

Veneering has in the past been too difficult and costly to undertake by the small shop, but can now be undertaken with confidence using a vacuum veneer press.

Until now I have largely relied on traditional hammer veneering, but after trying vacuum pressing I can't understand why I have never looked at this technique before. Vacuum veneer pressing offers a reliable and relatively cheap way to press veneer onto both flat and curved surfaces.

How A Vacuum Press Works

Most people assume that vacuum pressing simply works by sucking the veneer onto a surface, but this is not quite the case. Air removed from the sealed bag causes atmospheric pressure, no longer at equilibrium with the air outside the bag, to respond by exerting a uniform force or pressure of around 3/4 ton per square foot on the surface of the bag. Not only is the force far greater than most conventional presses but it is multi-directional. This is why any shape can be pressed and why only a one-part form is needed. Manufacturers also claim this process offers a stronger and more stable glue bond as the glue penetrates deeper into the wood.

Using The Vacuum Press

The vacuum press is a compact piece of equipment to store, but demands considerable space to operate. A flat table is preferable, large enough to suit the work undertaken. When working with smaller panels you can leave the bag partially rolled up, but you still need space to lay out your panel to apply the glue.

When you first use your vacuum press you will have to punch a hole though the bag for the non-return valve through bag connector. A punch is supplied

The Cloudmaker System

The Air Press System

and this only takes a second.

Although vacuum pressing is relatively simple, a few procedures will ensure good results:

- A test pressing without glue (especially on curved work) allows you to see how the bag will fold over your form.
- Depending on the type of glue you are using you may need to work quickly once you apply the glue. I find glue is best applied with a roller, as this provides an even coat quickly. During my trials I also found it was best to tape the veneer to the substrate to prevent it from moving slightly as the bag pulls down.
- It pays to round any sharp corners on jigs or even flat panels to prevent puncturing the bag.
- Jigs should also be either waxed or covered in plastic to prevent the work sticking due to glue squeeze out.
- Jigs for curved bending need to be of strong construction to prevent collapse under the force applied.
- Bundles of smaller panels can be placed together onto a single board before positioning into the bag.

After preparing and positioning the work the bag is sealed using extruded plastic sealers. These are very simple to use: the end of the bag is rolled over a tube, over which a plastic C-channel seal is placed.

After sealing the hose is connected to the pump which is then turned on. For flat work you can just about sit back and watch, but make sure the bag doesn't have any creases in it as it pulls down flat.

Curved pressings can be a bit more complicated. Ensure there is enough bag around the form and that it pulls in evenly on all sides. I found I had to stop the pump several times and open the bag seal to release the vacuum to make some slight adjustments. A practice run helps to anticipate any potential problems. For a complicated shape you may need two people to help ease the bag into place as it evacuates and pulls down onto the surface. Breather fabric supplied with the system is used

as a path for the air to evacuate from when curved forms are being pressed.

Don't worry if the glue bleeds through the surface of the veneer as this won't stick to the bag, and will generally sand off the veneer surface once dry. When using cracked or very open grained veneer it pays to cover the surface with a sheet of plastic. This prevents unwanted dry glue from being left in the bag. After the glue has dried for the recommended period remove the work from the bag—you'll hear a hiss as the air re-enters the bag.

The Systems

Both systems came with only very basic instruction sheets with little detail, a fact I found disappointing. Once I understood how vacuum pressing works (mainly through the video supplied by *Cloudmaker*) I was able to set both systems up with ease.

Upon initial inspection of the units I wondered why their cost was so high. Although both kits consist basically of a plastic bag and a pump, they are both very well made and use quality fittings. A cheaper alternative is to purchase a venturi pump, which runs off an air compressor. Venturi pumps work by sending compressed air through a restricted orifice, thereby generating a vacuum. Venturi kits use exactly the same bag and work very well, but can tie up your compressor for hours on end.

I tested both systems on flat and curved work. I used PVA glue because of the speed at which it dries, but urea or epoxy is recommended for complicated pressings where you need time to work and you also want to limit any creep. PVA glue dries even more quickly due to the increased rate of moisture loss caused by the extracted air.

To test the effectiveness of the pressing I cut through both pressed flat panels and curved laminations and was amazed with the results. There was a perfect, very thin glue line on both the curves and flat panels, even where the veneer varied in thickness. I was sold on vacuum pressing.

Air Press

The *Air Press* system is designed and

WOOD DIARY

1998

12 May-12 July
Objects of Ideas
Bathurst Regional Gallery
CCQ (07) 3229 2661

15-27 June
1998 Contemporary Furniture Exhibition
Cooroy Butter Factory, Qld
Jane Creasy (07) 5442 5055

19-21 June
Timber & Woodworking Show
Wayville Showgrounds, Adelaide
Riddells (02) 9712 5623 Fax (02) 9712 5628

19-21 June
National Woodturning Exhibition
Nunawading Arts & Entertainment Ctre
(03) 9874 7365

3-12 July
Winterfest in Warburton
Exhibition, demonstrations, displays
Toll free: 1300 368 333, Fax (03) 5967 1764

15-18 July
AWISA 98
Sydney Exhibition Centre,
Darling Harbour, Sydney
Tel (02) 9144 2465 Fax (02) 9449 9332

17 July-23 August
10th Anniversary National Dame Mary Durack Outback Crafts Awards
Tel (07) 3221 5300 Fax (07) 3221 4684

18-21 July
Furnitex 98
Melbourne Exhibition Centre
(03) 9698 4211

31 July-2 August
Timber & Woodworking Show
Homebush Bay Exhibition Centre, Sydney
Riddells: (02) 9712 5623 Fax (02) 9712 5628

8-9 August
Barossa Working 'N' Wood Show 1998
Tanunda Show Hall, Tanunda SA
(08) 8563 3540

8-9 August
Woodturners Society Qld Inc Exh.
Mt Coot-tha Gardens Auditorium
John Carter (07) 3397 8156

11 Aug-6 September
Living With Wood 98
Metro Craft Centre, North Melbourne
(03) 9326 8553 Entries close July 10.

4-6 September
Woodcraft '98: North Australian Woodworking & Timber Show
Townsville Entertainment & Convention Centre
Harvey Events Group (07) 4771 5755

19 Sep-18 October
Meet the Makers
Floriade, Commonwealth Park, Canberra
Tel (02) 6285 1186 Fax (02) 6285 1796

19 Sep-4 October
'The Devil In Waite'
Woodgroup SA members' exhibition
(08) 8383 6385

3-4 October
Woodturn 98
Meadowbank TAFE, Sydney
Doug Midgley (02) 4733 6814

8-11 October
SOFA Chicago
Info from Craft Australia (02) 92111445

9-11 October
Timber & Woodworking Show
Melbourne Exhibition Centre
Riddells: (02) 9712 5623

14-18 October
The Australian Craft Show
RNA Showground, Brisbane
Tel: (02) 9876 3905

16-29 October
International Woodcollectors Society
1998 Annual Meeting
Aldinga Beach, South Australia
Tel: (08) 8556 3446,
Email munz@adelaide.on.net

17-18 October
Greening Australian Native Timber and Furniture Expo, Albury
Mark Logan, (03) 5881 5631

23 Oct-29 Nov
Objects of Ideas
Orange Regional Gallery
CCQ (07) 3229 2661

23 Oct-6 Dec
Tasmanian Wood Design Collection
Customs House Gallery, Circular Queay, Sydney
(03) 6327 3394, (03) 6334 6558

23 Oct-7 Dec
Recent Works by Marcus Tatton
Centre For Contemporary Craft
Circular Queay, Sydney
(03) 6239 6505

29 Oct-1 Nov
Meet the Makers
Hordern Pavilion, Old Sydney Showground
Tel (02) 6285 1186 Fax (02) 6285 1796

Wood Diary listings are free, details to:
'Wood Diary',
Australian Wood Review,
PO Box 4336,
Loganholme D.C. Qld 4129

made in England. The bags are are tough, flexible vinyl, high frequency welded for strength. The clear polished top and natural finish bottom layers won't stick together.

The *Air Press* system was noisy. Its Swiss-made *AEG* pump is housed in a heavy duty steel frame with quality air fittings and a pressure gauge. When I first used it, it got louder after 15 minutes of running and I noticed the vacuum pressure had stopped. I checked the hose connectors and found nothing amiss. The vacuum suddenly started again and I had no further problems during my trials.

Depending on your application a piece of breather cloth is needed as a path for the air to escape. Alternatively you can make your own base board with grooves cut in it. Bag sizes available are 2400 x 1200mm, 3600 x 1200, 3600 x 2400 or sized to order. A one year manufacturer's warranty is offered and each machine is tested by the Australian distributor, *Toona Australis*, before sending out. Parts and accessories are available from the distributor and there are service agents for the pumps throughout Australia and New Zealand.

Cloudmaker

The *Cloudmaker* system, made locally in New South Wales, arrived in two packages and was quickly and easily set up. The system came with a 50 minute video, which, while being somewhat of an amateur production, did explain the potential of vacuum veneering and offered valuable tips on setting up and running the *Cloudmaker*.

The system uses a very quiet Taiwanese-made pump that seemed to work very well. A pressure gauge and inline filter are included. I ran it all day long with no problems at all. The *Cloudmaker* bags come with a grooved rubber mat which helps the air to escape from within the bag as it provides a path to the through bag connector. Bag sizes available are 1350mm x 1.5m and 1350mm x 3.0m. Custom-sized bags are also available.

Even with the rubber matting I found I preferred to use a baseboard as a flat surface to work off. With the rubber mat under this the air could escape from whatever I was working on. When working with jigs for curves a base board is also a must as it prevents the rubber matting from pulling against the jig and fouling the veneer you are pressing.

Conclusions

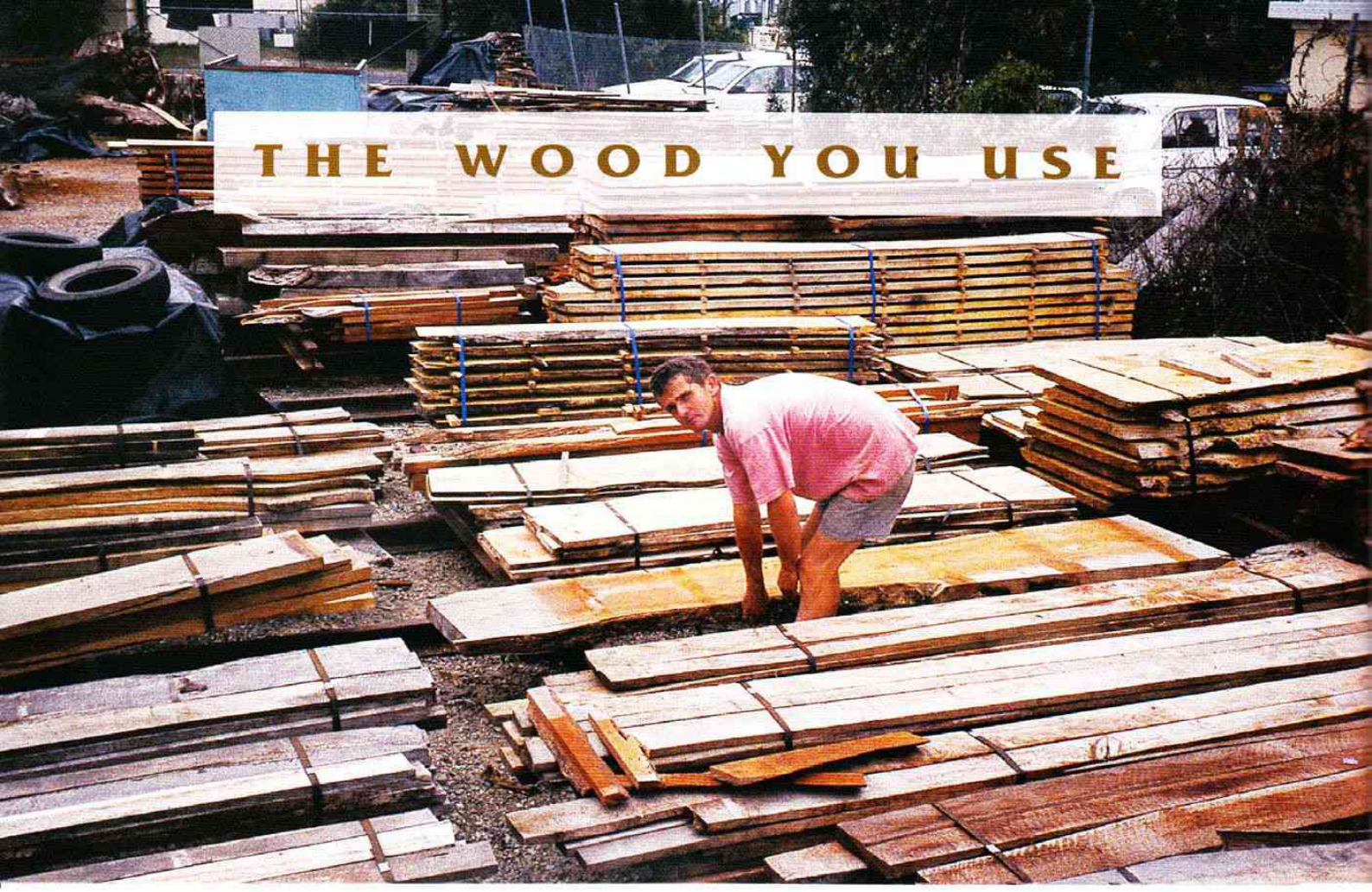
After performing the same tests on both systems, I found no difference in the quality of the pressings achieved. Both systems performed very well and generally take the same time to set up and use. I found the *Air Press* held its seal the best, probably due to its specially designed extrusion sealer. The *Air Press* system operates on a 6 cubic metre per hour displacement and is designed to run continuously, which is great as it enables you to use epoxies and slow drying glues. The *Cloudmaker* has a slower displacement of 4.2 or 3 cubic metres—allowing time, the manufacturer claims, for adjusting the workpiece. Both pumps are designed for continual use over many hours, and both get very hot in the process.

Both systems use quality air line fittings and have non-return valves on the through bag connectors. This means you can disconnect the air line from the bag and the seal will be maintained.

Air Press and *Cloudmaker* offer advice readily over the phone, which, more than likely you'll initially need. Anthony Yarham from *Cloudmaker* can only be contacted after hours, but his knowledge and advice is worth waiting for. This is of course of no help if you are right in the middle of gluing.

After using both systems over several weeks for various projects I consistently found myself being drawn to the *Cloudmaker* system because of the quiet pump and grooved rubber mat inside the bag which eased use.

Cloudmaker from: Tel/Fax (02) 9807 3925
Air Press from Toona Australis: Tel (07) 3344 2790. Fax (07) 3344 2795



THE WOOD YOU USE

As a wood user your ready supply of timber, along with the prices it commands and the species and sawn sizes available are vital issues.

We recently conducted a short survey among a number of timber merchants. The questions we asked and the answers they gave are summarised below and provide an indication of current and future market trends for timber.

What are the most popular furniture and craft timbers you supply and what percentage of sales do these account for?

Some suppliers numbered more than seventy different timber species available in their yards, yet around twenty species only represent around 75% of most suppliers sales. The most popular overall furniture or craft timber was identified as blackwood (Tasmanian and Victorian) followed by Tasmanian oak/Victorian ash, red cedar (Australian and imported), American oak, jarrah and silky oak. Trailing behind were mahogany (either Honduran, Brazilian, Fijian or African), camphor laurel, walnut, radiata pine, hoop pine, kauri, American cherry, European beech and North American maple. Also popular are New Guinea rosewood, celery top and Huon pine.

Assuming ready supply, what timber/s could you sell unlimited quantities of?

Not surprisingly, merchants are selling what is readily available, however two merchants suggested the Australian economy did not permit unlimited sales of any timbers. Other suppliers were a little more optimistic and identified walnut, Tasmanian oak, jarrah, clear pine, mahogany, New Guinea rosewood, American oak, American maple, hoop pine, sheoak, burls, kauri and Australian rosewood as easily saleable. As expected, very rare timbers such as figured blackwood and birdseye Huon pine are highly sought after.

Which are the best value for money timbers?

Merchants identified plain and figured blackwood as the best value for money timber that is readily available for furniture and joinery. Eucalypts and ash of standard grade are also considered good value as is silky oak, clear grade radiata, jarrah, American oak, red cedar, hoop, New Guinea rosewood, sheoak and mahogany. Most of these timbers appear in the 'most popular' list.

Which timbers are under-utilised?

Fashion, consumer ignorance and lack of promotion account for the fact that several lesser known species are worth considering for their potential. They include cypress, brown barrel, rose alder, satin sycamore, bolly silkwood, camphor laurel, poplar, marri, myrtle, sassafras, musk, afrormosia, nyatoh, melunak, eastern mahogany, wattle and Australian teak (crows ash).

How can a buyer get the best prices?

Other than buying the cheapest species on offer there are ways of ensuring the best price for the timber you want, but don't forget that no one is going to give away top grade timber. In general, the less handling of timber the merchant has to undertake the lower the overheads, so buying larger volumes is naturally the shortest route to lower prices.

Buying in pack lots (normally there are 1.5 cubic metres in a pack) is

always preferred by suppliers. Packs can be forklifted onto a truck and quickly despatched, leaving you to unpack, sort and fiddle with the boards. A pack purchase will usually attract a discount of around 10%.

Ordering the exact (and standard) timber sizes and lengths you need will allow orders to be economically made up, saving you dollars in the process. Purchasing random length and width bundles of timber will further reduce the price, as will accepting timber in short lengths.

Investigating other available grades of the same species will also bring down the price, providing of course a lower grade is acceptable to your own market. Consider too the fact that green timber is the cheapest form of timber and the drier it gets the more expensive it gets. It can be worth buying a green pack and stacking it away for a year or so.

How much call do you get for plantation timbers and which species are available?

Despite all the factors suggesting these may be the best bet for the future of forestry products, almost all merchants say they get very little demand for plantation timbers. Does this say something about the collective ecological awareness of Australian woodworkers? A number of plantation timbers are readily available in Australia and these include radiata pine, hoop pine, oregon, western red cedar, blackwood, mahogany, American oak, European beech, American cherry and blue gum. Next time you place an order maybe it is time to consider plantation stock.

What major changes do you see in the supply and selling of timber in the next century?

Being closer to the sources of their timber than most consumers, the merchant's view of the major changes in supply and selling of timbers in the next century is quite revealing. They see the timber production side of the Australian market being dominated in the next century by two or three big players as the smaller operations and sawmills disappear.

There were two opinions reigning in regard to the range of species available, some felt there would be increasingly fewer, while others saw more single native timber species entering the market. In either case the price of solid timber is forecast to rise dramatically.

Greater consumer concern and awareness over the origins of timbers will result in merchants depending on certification, and this will apply in particular to large projects under architectural supervision. The rarer and indigenous forest timbers will gradually be replaced in the market by plantation timbers. The quality of these should improve as older trees come onto the market, however in a world of diminishing resources will anyone really let a tree grow to one hundred years of age? Manufactured panel products, MDF, plywood and laminates are tipped to be the superstars of the 21st century. Veneer usage is also forecast to increase dramatically.

We concluded that either the decrease in resource will decimate the woodworking industries or people will place a higher value on things that are or appear to be made of wood. Perhaps those involved in the fine wood industry will finally get those top prices they have been dreaming about. Anyway we're all going off to plant some trees.

For further information contact your nearest timber merchant:

Adams Timber (03) 9761 8688
Australian Furniture Timbers (03) 9646 1081
Baltic Timber Imports (08) 8240 1100
Britton Bros. P/ L (03) 6452 2522
Canalpie Custom Crafted Furn. (02) 4571 1570
Charlie Henry Timbers P/L (07) 3274 4111
Cockatoo Timbers (03) 6458 1108
Djarilmari Timber Products (08) 9848 2020
Fiddlebacks (07) 3358 1260
Hyne & Son (07) 4121 8800
Island Specialty Timbers (03) 6297 1479, (03) 6398 1584
Lazarides Timber Agencies (07) 3851 1400
Mathews Timbers P/L (03) 9874 1666
Marquetry Craft Co. (02) 4423 4717
Mullumbimby Timber Salvage (02) 6684 0166
Otto and Co P/L (08) 8362 3522
Peter Scott-Young Veneers (03) 9870 8733
Processed Forest Products (02) 9645 1000
Rare Woods (03) 9427 8374
Southern Trade Supplies (02) 4869 1322
The Huon Piner (03) 6267 9796
Veneer & Timber Products (07) 3881 2068
Wren Timbers (07) 4055 9974

WOOD NEWS

Wood Productivity Award

Forestry Tasmania is seeking entries for the inaugural ***Forestry Tasmania Wood Productivity Award***. The award seeks to promote better use of Tasmanian wood and to foster awareness of the range of value-adding wood developments.

It was announced by the Hon. Tony Rundle, Tasmanian Premier, in July last year, to mark the official opening of Forestry Tasmania's new corporate headquarters in Hobart. The launch of the inaugural award marks the first anniversary of the move to the new building.

The award is open to entries for any product innovation that better uses Tasmanian wood—from a material or process to a finished product or system. It aims to recognise that new designs for processes and products are part of maintaining competitive advantages. It seeks also to foster the wise use of timber to conserve and efficiently use the forest resource and to recognise sustainable applications that demonstrate timber as a 21st century, renewable, greenhouse friendly material.

Entries must be in development for production or in production, accompanied with a 3 year plan, be capable of being sustainably produced in whole or in part within Tasmania, and offer competitive advantages. $10,000 in prize money will be shared by the winner and runner-up, for continuing development, application, production or marketing of the product. The perpetual trophy design is by a leading Tasmanian wood designer.

Entries close June 30th, 1998, forms are available from Forestry Tasmania (GPO Box 207B, Hobart 7001) or Tasmanian industry associations.

AWISA 98

The Australian Woodworking Industry's big event is on this year from the 15-18th July at Darling Harbour, Sydney. ***AWISA*** is 'the event' for professional makers, machinists, manufacturers, designers, architects and specifiers using wood, wood products or related fittings and equipment. For details phone Contact Exhibitions (02) 9144 2465 or fax (02) 9449 9332.

Bigger Than Ever

Furnitex 98, the Victorian trade showcase for furniture runs 18-21 July alongside Furnishing Week. A $150,000 government-backed fund supports the concept and the involvement of every retail furniture store in Victoria is sought. Around 240 exhibitors will display their furnishing wares at Melbourne Exhibition Centre. Contact the Victorian FIAA on (03) 9698 4211 for more information.

Rex Bower of the Woodturners Society of Queensland demonstrates woodturning to Scout Association members.

Whereisit Site

Turn off the lathe and go surfing. The ***Whereisit Wood*** internet site, established by Commercial Online Promotions, has been operating since mid-'97. The site offers free web pages to woodworking clubs to advise members and others of regular meetings and special events, and to display images of members' work. 'Club of the Month' is featured, as is a gallery of woodwork images. Free pages are also offered to individuals wishing to sell work. Contact the *Whereisit Wood* site at www.whereisit.net.au or phone (03) 9886 0375.

Glue Everything

There is no perfect glue, but F.N. Chittams, the Australian distributor of ***Titebond Wood Glue***, recently conducted a test on twenty of the most commonly available furniture and joinery timbers. In their opinion *Titebond* is suitable for timber species as varied as blackwood, maple, oak, pine, cedar, mahogany, teak and jarrah. Chittams sell the glue in various sized containers, call them (03) 9853 7497.

3M adhesives are offering small to mid-sized woodshops the chance to acquire a *Jet-Weld* applicator at no charge. The applicator (normally $1000) is for the *Jet-Weld* adhesive which offers bonding times of 5-10 minutes. Call Cherie Barber at *3M* on (02) 9498 9314

Being Prepared

Tying knots is only one of the skills learnt by today's scouts, thanks to the combined efforts of the *Woodturners Society of Queensland* and the *Ipswich Woodcrafter Members*. Both groups worked with the Scout Association at the 18th Australian Jamboree to ensure the 11-14 year old boys and girls also learnt basic turning skills to create a wooden whistle. Six lathes turned for eight days under a marquee to produce a total of 1,700 whistles. It is unknown if they were blown simultaneously.

Meet The Makers

New in terms of craft shows, *Meet the Makers* will be staged in Canberra, Sydney, Melbourne and Adelaide. With a broad public appeal and focus on Australian lifestyle products, it will showcase the products of Australian artists, craftspeople and designers as well as small manufacturers and producers. For enquiries contact Steve or Anne Watson on (02) 6285 1186. See Wood Diary for dates.

Deep North

The woodcraft community of North Queensland, is about to experience its biggest wood and timber show ever, ***WoodCraft '98***. It is anticipated the inaugural show will attract around 10,000 visitors from an area that contains some of the most interesting and diverse timber species in the country. Recognised suppliers as well as a comprehensive line-up of craftspeople will demonstrate their talents to this largely untapped market. In addition The ***World of Wood Showcase*** will display quality finished timber pieces. At Townsville Entertainment Centre from the 4-6 of September. Contact Event Manager, Sue Wilkes at Harvey Events Group (07) 4771 5755.

Studio Tourism

Having trouble showing your work? Want busloads of tourists to arrive at your door? Well maybe the ***Crafts Council of South Australia*** (CCSA) can help you. They are collating a register of craftspeople who would like to be included in 'studio tours'. They are interested in hearing details such as the type of craft undertaken, how many people can fit in your studio, whether items are for sale, or if you

are prepared to give a short talk on your work. Contact Susan Pietsch (08) 8410 1822.

SOFA Sales

Australian contemporary art was again acclaimed in the international arena through gallery sales of work at ***SOFA*** (Sculpture Objects Furniture Art) 1997. Overall Australian sales of $250,000 were recorded. While *SOFA* is branching out into an April show in New York, for this year's Chicago *SOFA* in October, Craft Australia is again managing participation of galleries. Contact Josephine Heitter, Export Program Manager, Craft Australia (02) 9211 1445.

San Francisco Gift Fair

If you are a craftperson interested in cracking the US west coast market and are willing to make a three year commitment to this market then this is the fair for you. A subsidy is available from the *Arts Export Strategy* and *Craft Australia* who are organising a stand at there. Again contact Josephine Heitter, see above.

Avenues of Opportunity

If you are looking locally to promote and market your work there are plenty of places to begin. *Museums Australia Inc (Vic)* have a publication: ***Assistance in Organising Exhibitions***, a handbook designed to give the reader information on developing exhibitions, budgets and planning as well as legal issues. ($14.95 plus $5 postage), phone (03) 9651 6768.

The ***1998 Australia Council Grants Handbook*** is available free from the Council on 1800 226 912 or (02) 9950 9000.

If you fit into the visual artist category and seek support then ***Money for Visual Artists*** may be your cup of tea. Available from bookstores for $25 (you have to spend money to make money) or from NAVA phone (02) 9368 1900

IFFS Shines On

The ***International Furniture Fair Singapore 1998*** ignored the Asian Currency Crisis to record US$185 million in spot order sales in March. Held in conjunction with the *15th ASEAN Furniture Show* it attracted 448 exhibitors from 23 countries—up approximately 10% on 1997—and 15,390 trade visitors. Next year's event will be staged at the new mega exhibition centre, Singapore Expo.

Special Offer

The Jet 250mm Table Saw (Model JWTS-10JF) is currently on special at $1190 (including sales tax). The front rail guard allows a 30" rip to the right and a 12" rip to the left. Other features include the *Jetfence* quick release

The Jet JWTS-10JF tablesaw from Woodman Group

precision T-square type rip fence, 4" dust outlet, heavy duty cast iron T-style mitre gauge slots, heavy duty trunnions supporting a cast iron blade arbor (5/8") housing with two precision ball bearings. Available through the Woodman Group at this price for current stock only. Contact: (Nsw) (02) 9708 3233, (Vic) (03) 9555 5199, (Qld) (07) 3844 443, (SA) (08) 8346 4561.

Showroom Species

Adams Timber have moved to a new factory in Kilsyth with a showroom displaying over 20 types of timber flooring, panelling, solid timber bench tops, architraves, skirting boards, timber mouldings and samples of more than 72 different timber species. The new location offers all day Saturday trading, on-site machining of customer timber orders—in most cases within 48 hours, and solid timber benchtops manufactured on site. The increase in business has meant an increase in staffing needs. Along with the promotion of Andy Tricky to sales representative, three trainees have been employed on the TMA Traineeship program. Contact *Adams* in Melbourne, Kilsyth (03) 9761 8688 or in Canberra, Fyshwick (02) 6280 6467.

The Devil's Own

When the Adelaide-Crafers Highway was being constructed mature trees were felled. The large part of this timber was recovered by *Otto's Timbers* and the *Woodgroup SA* members who collected 15 tonne. The group turned the timbers from the Devil's Elbow corner into an exhibition aptly named *The Devil's Own Wood*. Extending this theme, this year's exhibition ***The Devil in Waite*** incorporates works turned from timbers of the Devil's Elbow and the Waite Arboretum, as well as other timbers. The exhibition at Urrbrae House in the Waite Campus of the University of Adelaide runs from September 19 until October 4.

Triton's 21st

The 21st birthday of the *Triton Manufacturing and Design Co* was enthusiastically celebrated by Mr Michael Berry of Maryknoll when he was chosen randomly from a list of recent buyers of *Triton Series 2000 Workcentres* and *Sliding Tables*. Mr Berry enjoyed many happy returns when he won $5000 worth of Workshop equipment including tools from Stanley, Ryobi, Hitachi, Makita, Bosch, Skil, Metabo, Organoil, Taubmans and of course, Triton.

Labelling Legislation

An article in *Furnishing Australia*, (Issue 19) by editor, Mike Radda highlights the confusion surrounding furniture labelling laws in Australia. The labelling is covered by differing legislation/regulations from state to state, however, the Mutual Recognition Agreement prevents state legislation acting as a barrier to trade. Where a manufacturer is supplying a retailer in the same

state, they are naturally bound by that state's legislation. For instance, in Queensland, a manufacturer must legibly label furniture with the name and address of the place of manufacture. The origin of imported components must also be identified. Retailer are required to ensure this labelling is attached. The maximum penalty for non-compliance is $120,000 for corporations and $24,000 for individuals, so it's worth checking out what your legal obligations are. The various states legislation/ regulations on labelling are:

South Australia: *Trade Standards Regulation (1985) Section 3.15—Furniture*

Victoria: *Consumer Affairs Act Victoria (1972) Division 3 Furniture Regulation*

Western Australia: *Fair Trading (Furniture —Product Quality Standards) Regulations (1988) (WA)*

Queensland: *Section 10. Fair Trading Regulations 1989 (Qld)*

New South Wales: All labelling legislation repealed other than mandatory care labelling requirments of upholstered products.

A Good Combination

The ***Optimake***, made in France by *Lurem*, is a snappy combination that appears perfect for the home woodworker. The machine features a 200mm saw, sliding carriage, 180mm wide planer/thicknesser, router with 12mm collet and three 0.75 kw motors. In addition, a stand with built-in dust extraction is available, the machine can be carried by two people for portability. The *Optimake* is distributed by *Record Hand & Power Tools* (02) 9748 6800

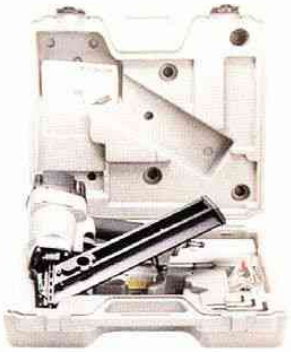
Optimake combination from Record

Cabinetmakers Tables

Trimtramp's new *Model 100* sliding compound mitre saw table aligns 150mm to 235mm portable circular saws so that the blade cuts on the downstroke. Angle joins, dado and rabbet cuts are all possible with this model which crosscuts 400mm and weighs in at only 10kgs. The *Professional Model 300*, offers a wider 500mm crosscut. Both models accept a router kit. More information from *Promac* (07) 3279 4811 or 1800 773 267.

Special Wood Review Subscriber Offer

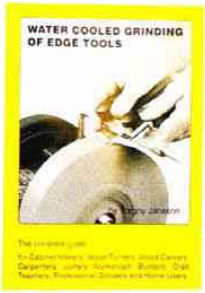
If you could use the quality, balanced knife shown above then here is a deal for you. Take out a two year subscription or renew your subscription to *Australian Wood Review* for two years and receive a free *Frosts* knife courtesy of *Australian Wood Review* and *Tormek*. The knife features a Swedish stainless steel blade, high impact handle and comes complete with a sheath. The catch is we only have 200 knives to give away, so first in best dressed! You can phone, fax or post in your subscription, details are on p.92.



Powerful Stuff

Respected American tool maker, *Porter-Cable*, have some new heavyweight tools on the Australian market. Their range of pneumatic fasteners (pictured above) will suit cabinetmakers and carpenters looking for reliable and smooth operating nailers while their top end router, the 7539, comes in with a whopping 3.25hp, 5 speeds and 75mm plunge travel. *Porter-Cable* are stocked by Carba-Tec Brisbane 1800-658 111, Melbourne 1800-653 777, Sydney 1800-683 583

Free Book



If you ever desired to purchase a *Tormek* whetstone grinding system then you are about to be sorely tempted. *Water Cooled Grinding of Edge Tools* is a small but in-depth book which tells all and Promac have 300 to give away. To receive your copy telephone (07) 3279 4811 and mention you heard about it in *Australian Wood Review*. Be quick!

Subscriber Prize Deal

All current subscribers are eligible to win one of these power tools! Winners announced next issue.

Panasonic EY3503FQWKW Cordless Wood Saw, finely engineered, 48mm depth of cut, angle fence, two batteries, fast charger. From Panasonic (02) 9986 7589

Bosch GUF 4-22A Biscuit Joiner & Grooving Saw, 2.7 amps, trims panels, saws grooves and cuts biscuits. From Robert Bosch Australia (03) 9541 7240

Take out a two-year subscription *or* renew your current subscription for two years and receive a ***FREE*** *Frosts* knife. The knife is made from Swedish stainless steel and features a high impact plastic handle and sheath. But, we have only 200 knives to give away, so be quick. Allow up to 4-6 weeks delivery. To receive this knife you *must* mention this offer. [Australian residents only.]

Become a subscriber to Wood Review, save money and be eligible for this and future prize draws. Return the form below today to:
Australian Wood Review, PO Box 4336, Loganholme D C, Qld, Australia 4129
or fax to (07) 3287 7099, telephone: (07) 3287 7088

Copies of this form are acceptable. **Winners announced issue 20 (offer applies to Australian residents only) prize drawn Aug 20, 1998**

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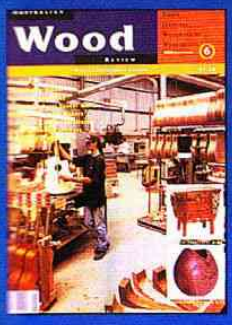
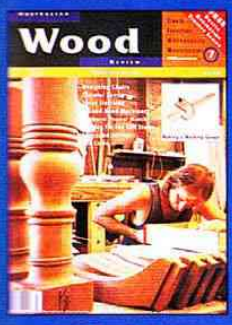


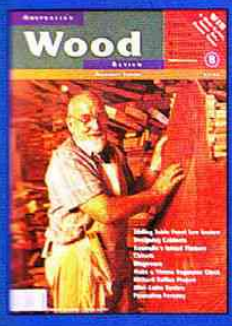
No. 6

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.



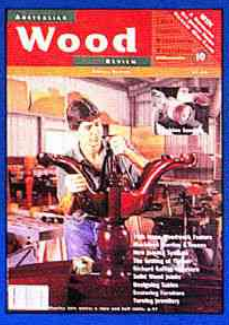
No. 7

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



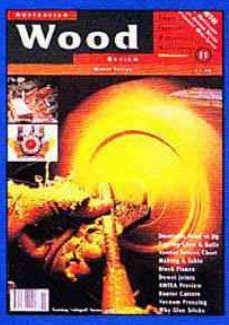
No. 8

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. 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

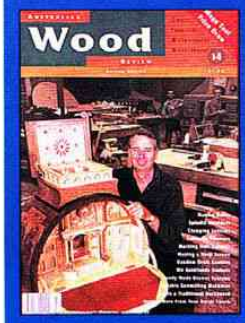
Dovetails, router cutters, veneer reference chart, dowel joints, carving claw & balls, a colonial table, block planes, turned and carved 'winged' forms, Cook's Endeavour, collecting timber, walnut, tiger myrtle, vacuum pressing, Jah-Roc, MAP.

No. 12

Sawblades, dust extractors, routers, document box plans, sharpening turning tools, CNC, Japanese saws, distressed finishes, selling your work, sawmilling, Griffith Furniture, teak, French woodturners, veneered table top.

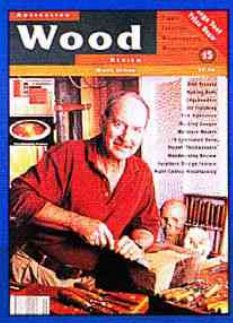
No. 13

Panel saws, making drawers, safety, a hall table, router usage, jigmaking, Huon pine, Leo Sadlek, working smarter, sawmilling, laminated/segmented turnings, collaborative woodturning, Wentworth Furniture, Jeannette Rein



No. 14

Making doors, spindle moulders, clamps, laminate trimmers, squares, making shoji, random orbit sanders, WA Goldfields timbers, drawer systems, portable sawmilling, carve a backboard, scroll chucks,turning handled bowls, inlay, David Boucher.



No. 15

Furniture design comp. review, making beds, drill presses, edgebanders, oil finishinng, PVA adhesives, marking gauges, moisture meters, a laminated desk, planer-thicknessers, new woodturners, multi-centre turning, turning bookends, eye safety, Don Powell

No. 16

1997 lathe review, buying mid-range panel saws, a collector's cabinet, spindle moulder operation, designing office furniture, Huon pine turning feature, Australian toolmakers, drying wood, turning spheres, chip carving, belt sanders, ancient timbers, Elvin Harvey, Paul Noordanus

No. 17

Matched dressing tables, demystifying 'design', sharpening drill bits, a screen, respiratory safeguards, working smarter, cordless drills, bandsaws, Japanese tools, plane blades, Tessa Furniture, lidded box and spillikans, a segmented bowl, sandalwood, jewellery box.

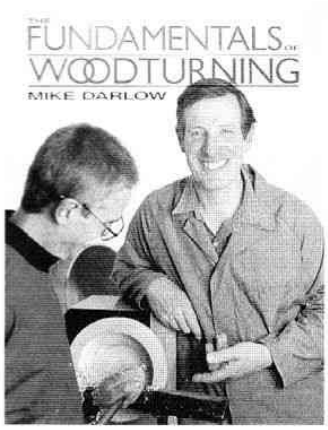
No. 18

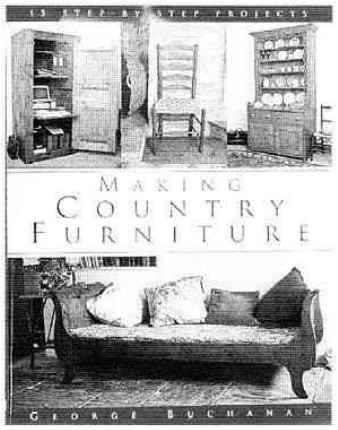
Combination machines, biscuit joiners, scroll saws, urban forestry, using scrapers, design for turners, large scale cabinet design, columns, 18th century table, Peter Cook's puzzle boxes, William L. Jackson, Tasmanian Wood Design Collection, Wesfarmers Fine Wood Awards.

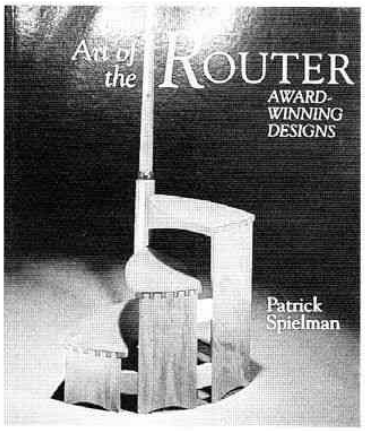
Bookshelf

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

Book reviews by Dana Redmond







The Fundamentals of Woodturning

By Mike Darlow

Following on from the seminal *The Practice of Woodturning* (first published in 1985 and revised in 1996), internationally renowned woodturner and teacher Mike Darlow has revisited the subject to allow beginners to become familiar with a new lathe; to gain basic knowledge of turning; and to enable the beginner to continue to self-teach to a sophisticated level. Darlow himself argues the reader will find only information relevant to these aims within and that further reading is required. He also suggests that the plethora of woodturning books on the market are often contradictory and he claims his book offers the best practice approach for all turning situations.

So fundamental is this introduction to the beginner, the first chapter asks the question ' Is woodturning for me?' as it traces possible motivations for wanting to become a turner, a brief history of turning and some personal portraits of established turners. From this rather esoteric, if not inspirational beginning the reader is launched into the practicalities of contacting woodturning guilds to lathes and associated equipment; cutting and tools; design, wood and workshop practices; spindle turning; cupchuck turning; faceplate turning; bowl turning; and hollow turning.

The 200 A4 pages include 418 colour photos and 50 colour diagrams which closely illustrate the written text so hopefully no student is left in the dark as they work through the 15 graded exercises and projects. This book is an essential guide for the new lathe owner or anyone who wants to work through the fundamentals of turning to achieve new skills and a new approach to their work.

Softcover, 198 pages, $47.95

Making Country Furniture

By George Buchanan

Making Country Furniture takes the reader through every stage of creating 15 distinctive pieces of country style furniture in all their timeless simplicity and elegance. George Buchanan takes the most basic woodwork tools and skills and applies them to: a hanging rack, a candle box, jelly cupboard, five plank stools, kneehole desk, oak chest, set of ladder back chairs, sleigh bed, kitchen dresser, cupboard office, twelve drawer chest, trestle table, corner cupboard, small mahogany box and a child's chair. Step-by-step instructions with illustrations and colour photos of the finished product accompany each project. Key subjects such as finishing, ebonising, panelling or dovetailing are highlighted, making it a perfect workbook for the teaching or home workshop. Apart from the fully dimensioned plans and cutting lists, a chapter is dedicated to the tools and techniques required to make these pieces.

Hardcover, 176 pages $45

Country Chair Making

By Jack Hill

This fascinating book draws on the traditional functional form of the chair as conceived in the villages before the industrial revolution and turned out by men who dedicated their entire lives to the making of chairs. The first section of master craftsman Jack Hill's definitive book covers every angle of the making of these chairs from their history including specific chair styles and their makers (for example Philip Clissett, Ernest Gimson of the 1800s through to Owen and Dean George who produced on pole lathes set up among the trees into the 1950s); to the timbers traditionally used in the UK. The traditional tools and devices of the woodlands are discussed in detail and appear in ink line drawings as are the techniques employed in the past as successfully as they are today. The latter include preparing the wood; rounders; seat shaping and weaving; bending; jointing; assembly and finishing The second section offers thirteen projects: stools; backstool; child's rush-seat chair; comb-back; single ladderback; low bow-back; Clissett ladderback; single bow windsor; rocking chair; Gimson ladderback; spindleback; smoker's bow; and double bow windsor. All projects include plans and dimensions in both imperial and metric measurements. Black and white photos illustrate the procedure while coloured photos show the finished product in all its glory.

Softcover, 152 pages, $34.95

The Art of the Router: Award Winning Designs

By Patrick Spielman

Since the router's promotion to essential woodworking tool status, its potential has been explored by woodworkers around the world. Patrick Spielman has brought a selection of their designs together into the latest of his 'Art of' series. The first section of this book traces the router from its forerunners of the 1940s to the range offered today and their most desirable features. Router bits are covered in detail as are router tables and safety precautions. Chapters on surface routing, router joining, and turning and carving with a router are illustrated with colour photos to show the enormous range of operations this tool can perform. The second section of the book introduces artisans, their concepts and projects which combine the techniques with the vision and skill of some of America's better known and lesser known woodworkers. Each project offers insight into the process, diagrammatic plans and full colour photos to illustrate the colour and grain of each timber species described. This book is more than a handbook to the router and its application, it is designed to stimulate the reader into personal inspiration.

Softcover, 144 pages, $29.95

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MAWSON'S HUTS RENOVATED

Summertime ('97-98) renovations of Sir Douglas Mawson's Antarctic huts, which were the base camp of the Australasian Antarctic Expeditions of 1911-1914, saw them preserved for their heritage value.

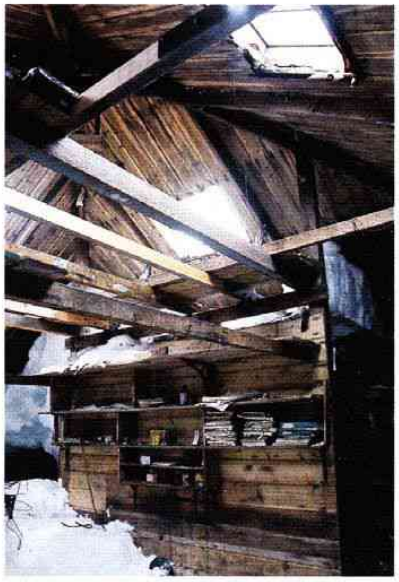
Renovating the pitched roof of a heritage hut in the intense chill and high winds of the Antarctic takes extremely careful planning, right down to the thumbtacks—or screws in this case—as well as funding. The independent news service, Australian Associated Press (AAP) built on its unique role as the daily messenger to the four frozen cocooned bases by raising more than $2 million through the AAP Mawson's Huts Foundation.

Without conservation work the huts risked becoming flotsam in the Great Southern Oceans. Two of the huts, made from the party's cypress packing cases were already just standing ruins with some parts lying frozen in the ice. The main hut, an 11 x 9.5 m structure, housed 18 men in 1912 and was pre-fabricated by Sydney timber merchant George Hudson of oregon frame and Baltic pine cladding. The adjoining workshop, made by Adelaide's Walter and Morris, housed a lathe and a forge with adjoining verandahs for the huskies, sleds and air tractor.

The huts have withstood 87 years of blasting 200kmph winds in the windiest place on earth at sea level and tonnes of snow being dumped on their roofs. The frozen snow provides considerable abrasion to the soft Baltic pine, yet it does not rot and has taken the ice punishment well.

The choice of screw used to attached new Baltic planks to the existing ones was significant considering the work was subject to some of the strongest winds experienced in recent Antarctic summers and much time was spent just digging the materials out of the snow drifts. The ease of driving and resistance to abrasive wear were appreciated in *Sachys Industries' Robertson Screws* stainless screws.

The highly sensitive magnetic research equipment in the Magnetograph hut required absolutely no magnetic interference thereby presenting Geoff Ashley of Godden Mackay Heritage Consultants, with yet another challenge. Robertson's silicon bronze screws, stronger than brass but not as strong as stainless steel, offered the solution with their high resistance to corrosion.



With the huts now stabilised, the conservation party is confident they'll be standing for their Centenary in 2012 as monuments to the tenacity of Mawson and his followers.

Photos: Geoff Ashley

Main image: Builders David Gillot (left) and Ted Bugg fixing new Baltic pine roof cladding boards over orginal boards to workshop section of Mawson's Main Hut.

Inset: Main Hut valley, Cape Denison with Boat Harbour to right.

Above: Inside living section of Main Hut after restoration of mezzanine platform.

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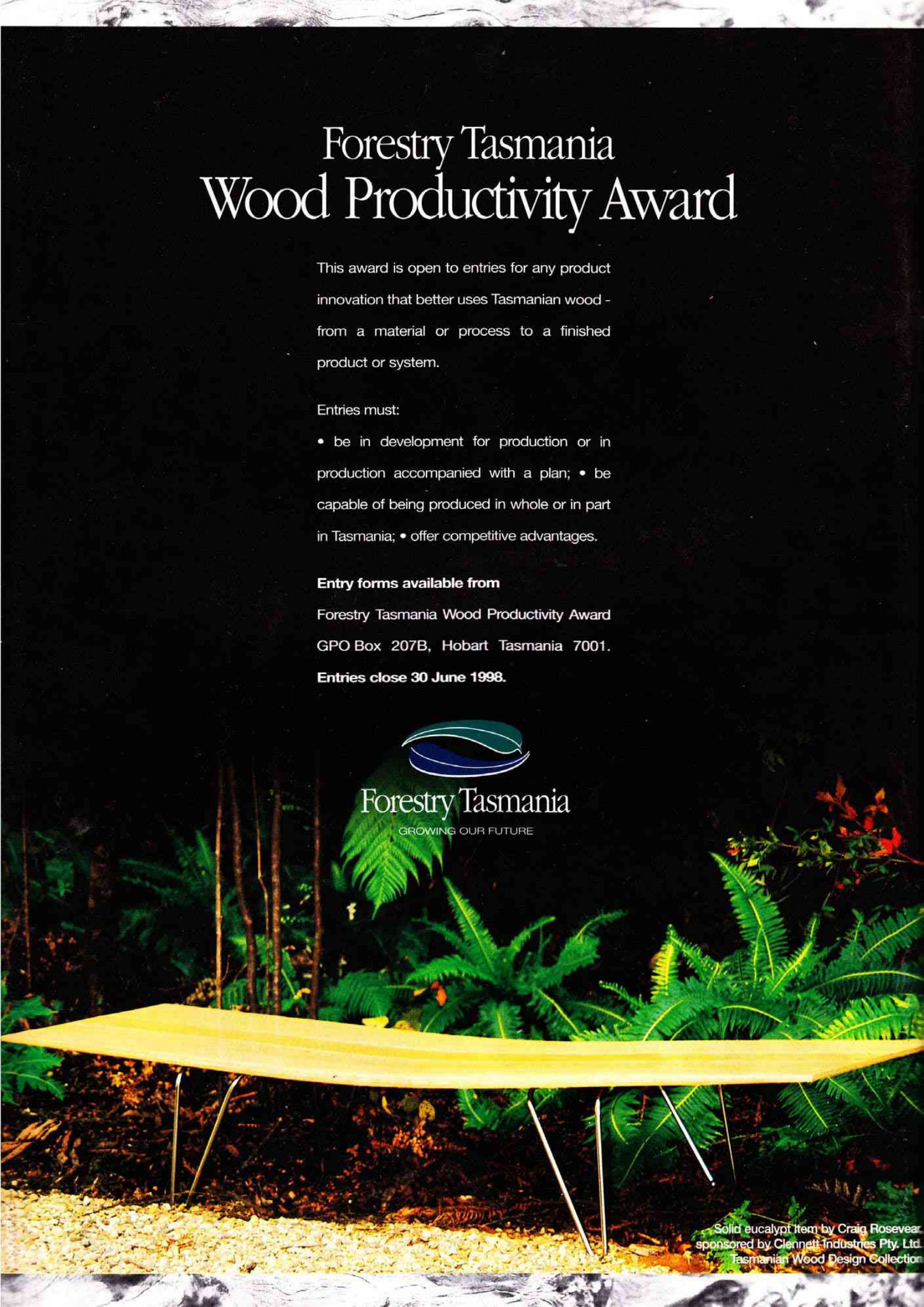

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