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Peter Cook's boxes'p.46

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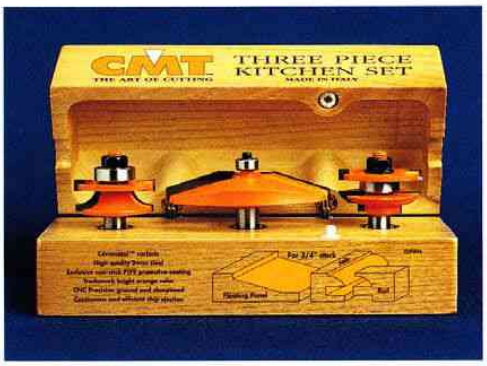

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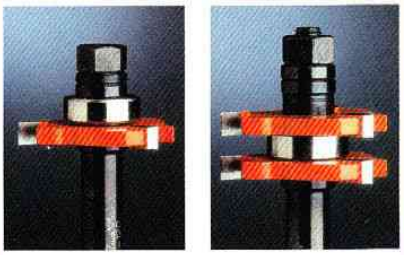

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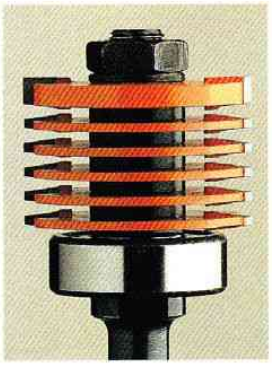

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Australian Wood Review

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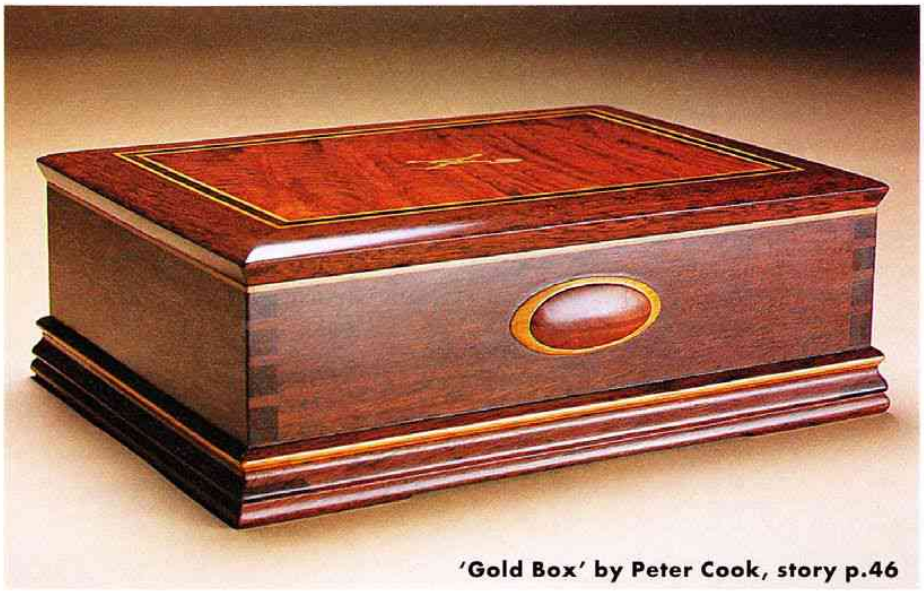


'Gold Box' by Peter Cook, story p.46

EDITORIAL

One of the most interesting by-products of the vastness of this country is, in terms of timber, the different species which are common to different areas. Not only are we now seeing the identification and promotion of timber species native to a particular state, but also the designers and makers within it. Two instances of this are reflected in this issue of *Australian Wood Review*.

Towards the end of last year I was honoured by an invitation to act as one of five judges for the *Wesfarmers Fine Wood Awards*, a prestigious exhibition which was displayed in the centre of Perth's CBD. The exhibition was organised by the Fine Wood Industry Project, an association which exists to promote West Australian woodworkers and West Australian timbers to the world. This was a great opportunity for me to meet up with several well known woodworkers and see at first hand the high standard of furniture and decorative objects which are being produced in that state.

This issue we also feature the new acquisitions of the *Tasmanian Wood Design Collection*. This was established eight years ago with somewhat similar aims of promoting the appreciation and usage of Tasmanian timbers and the work of Tasmanian designers and craftspeople. This collection, after winning an award for best exhibition at the 1996 International Contemporary Furniture Fair in New York, has now embarked on its second world tour!

It seems that efforts to promote native timbers and Australian makers seem to be far more visible and possibly successful on a state rather than a national level. The distance between regional centres makes efforts to stage national competitions and exhibitions difficult and costly, yet surely it would be good to see more promotion of an 'Australian' wood design culture both locally and abroad.

****

The hazards of wood dust as a physical irritant are fairly widely understood, however the chemicals in wood may present another danger. In some cases sensitisation may occur, meaning that even limited contact may produce reactions of varying degrees. Part V of our safety series discusses this topic. If you experience any reactions to wood or to particular species it might be a good idea to record these systematically.

Where doubts exist with any of the safety concerns related to woodworking we have discussed in recent issues, it would make sense to invest in and wear appropriate safety gear now—ask questions later.

Editor, Linda Nathan

EXHIBITIONS

The Magic of Wood

Victorian Woodwork Festival Exhibition, Manningham, November, 1997

The Magic of Wood was the 14th annual exhibition organised by the Victorian Woodworkers Association—this year on behalf of the fledgling Council of Victorian Woodwork Clubs. The new Council aims to create a state network of woodwork clubs for mutual support, information exchange and joint projects like the Woodwork Festival.

The exhibition was open to members of the fifty-odd clubs in Victoria, and attracted 120 entries vying for awards in eight categories. 2,500 people visited the exhibition over ten days. Despite the mix of professionals, serious hobbyists and students, the standard of entries was generally high, with some outstanding pieces in particular.

There was no question about the winner of the 'Les West Memorial Prize for Design & Workmanship'—Will Matthysen's absolutely stunning *Clock No 44* in satin box and ancient redgum. 'An easy selection—self evident excellence' was the judges' comment. Harold Irving keeps refining his delicate turned shapes in Huon pine. His lidded container *Sphere in Grooved Cube* won the Award for Turning.

Annette Cock's passion for wood and the Australian landscape were also strongly expressed in her sensuous *Table* whose beefwood top sat upon legs made from jarrah, redgum, melaleuca and ironbark which were carved to resemble river stones. Winners were:

1 Turning
Sphere in Grooved Cube, Harold Irving

2 Les West Memorial Prize
Clock No 44, Will Matthysen

3 Use of Australian Timber
Shrine Display Cabinet, fiddleback ash veneer and red ironbark, Leo Sadlek

4 Cabinetwork or Furniture
Red Siris Sideboard, Andre Drezga

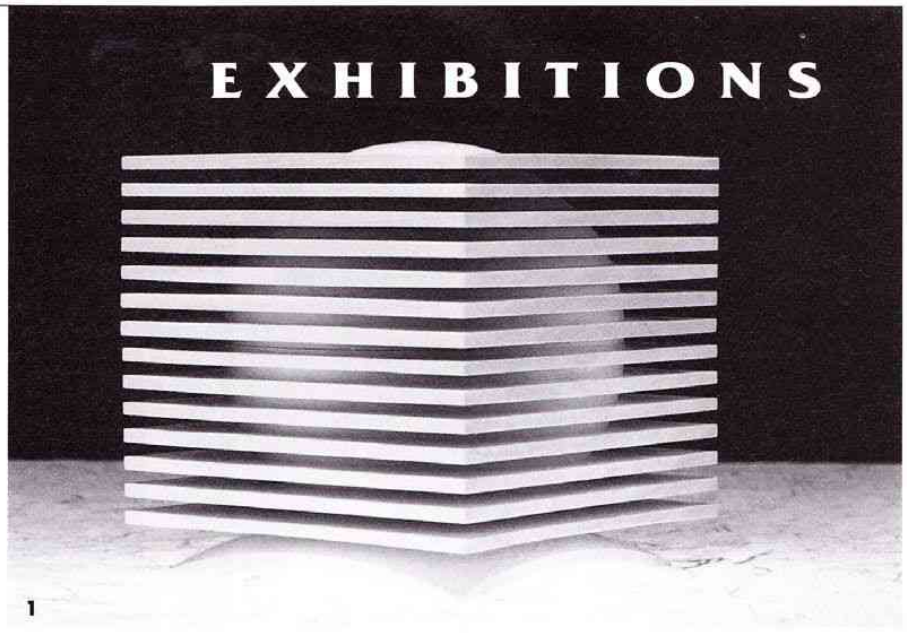
5 Production Item
Serving trays, Frank di Stefano

6 Carving
Sea Eagle, Donald Glue

7 Recycled Timber
Multi-purpose Casket, recycled ironbark, jarrah, ash, Damien Wright

8 Novice/Student Award
Andrew Wood (piece not shown).

Photos: N.T. Photography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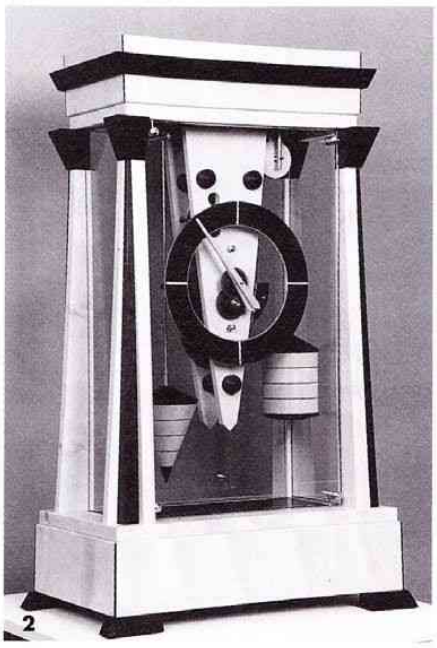
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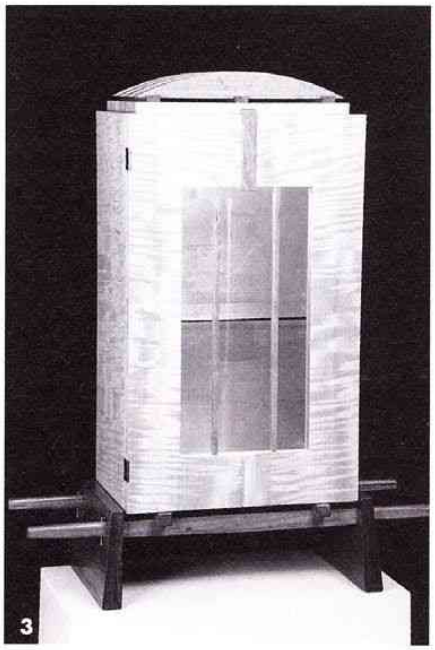
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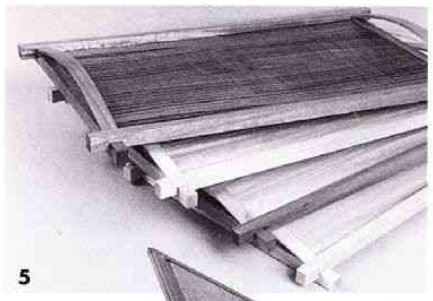
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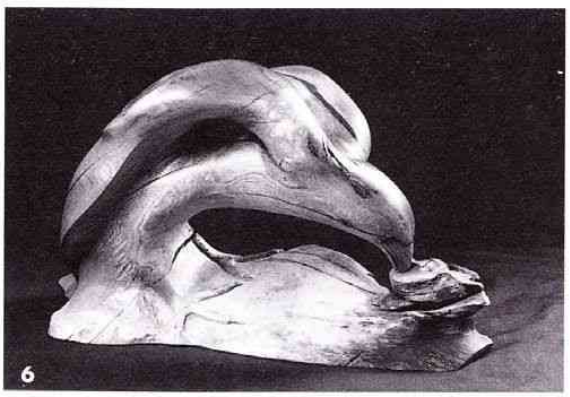
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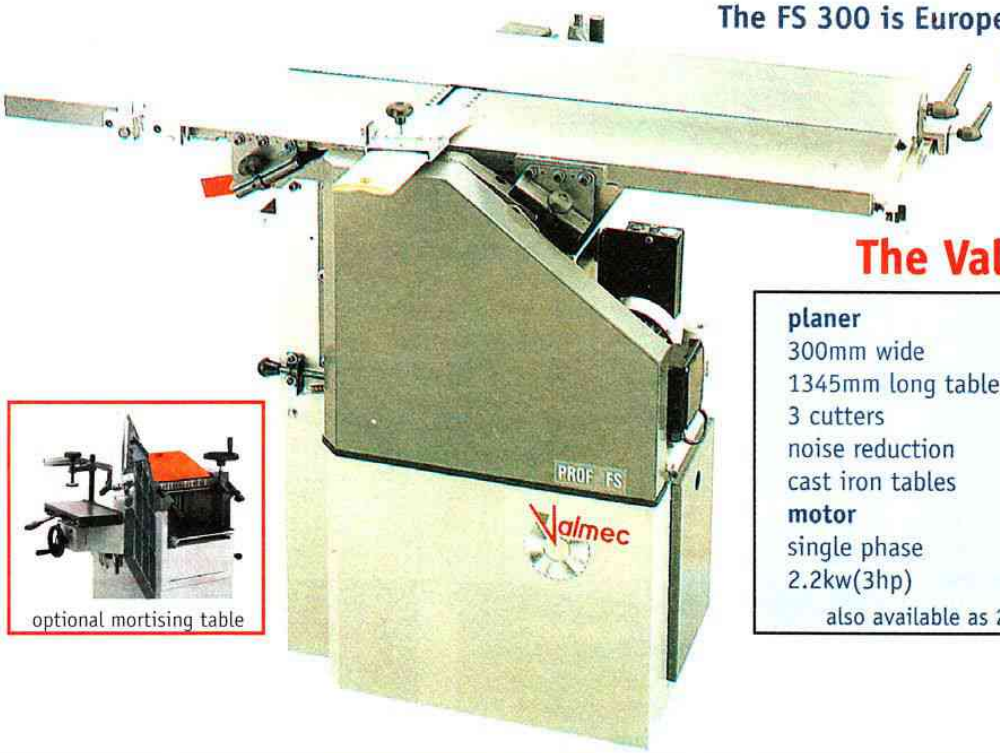

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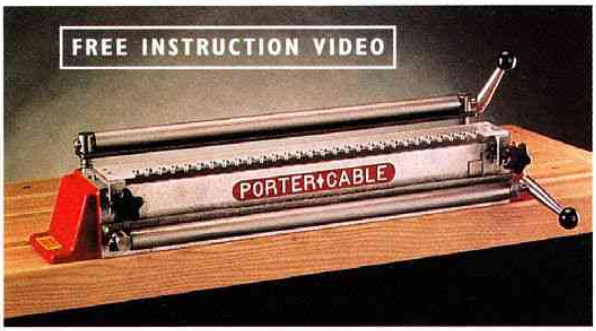

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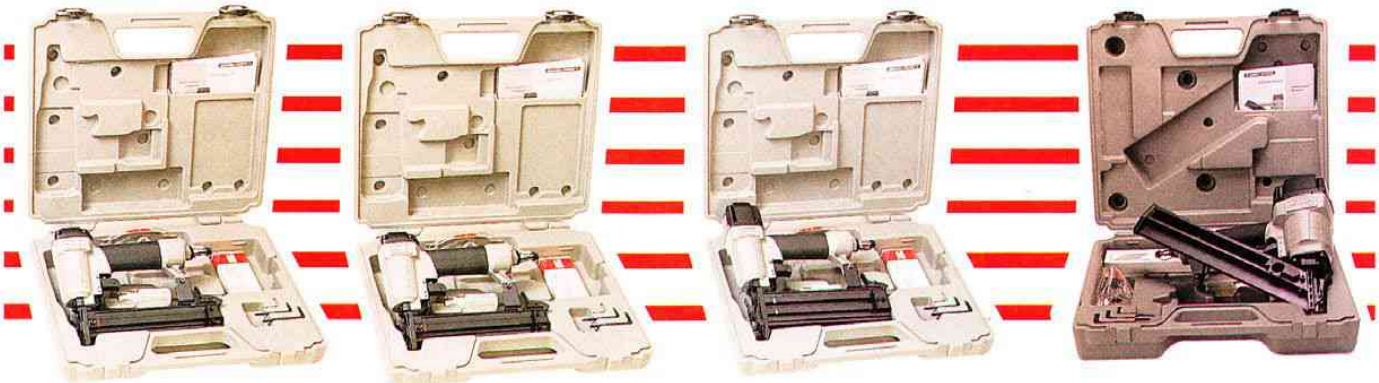

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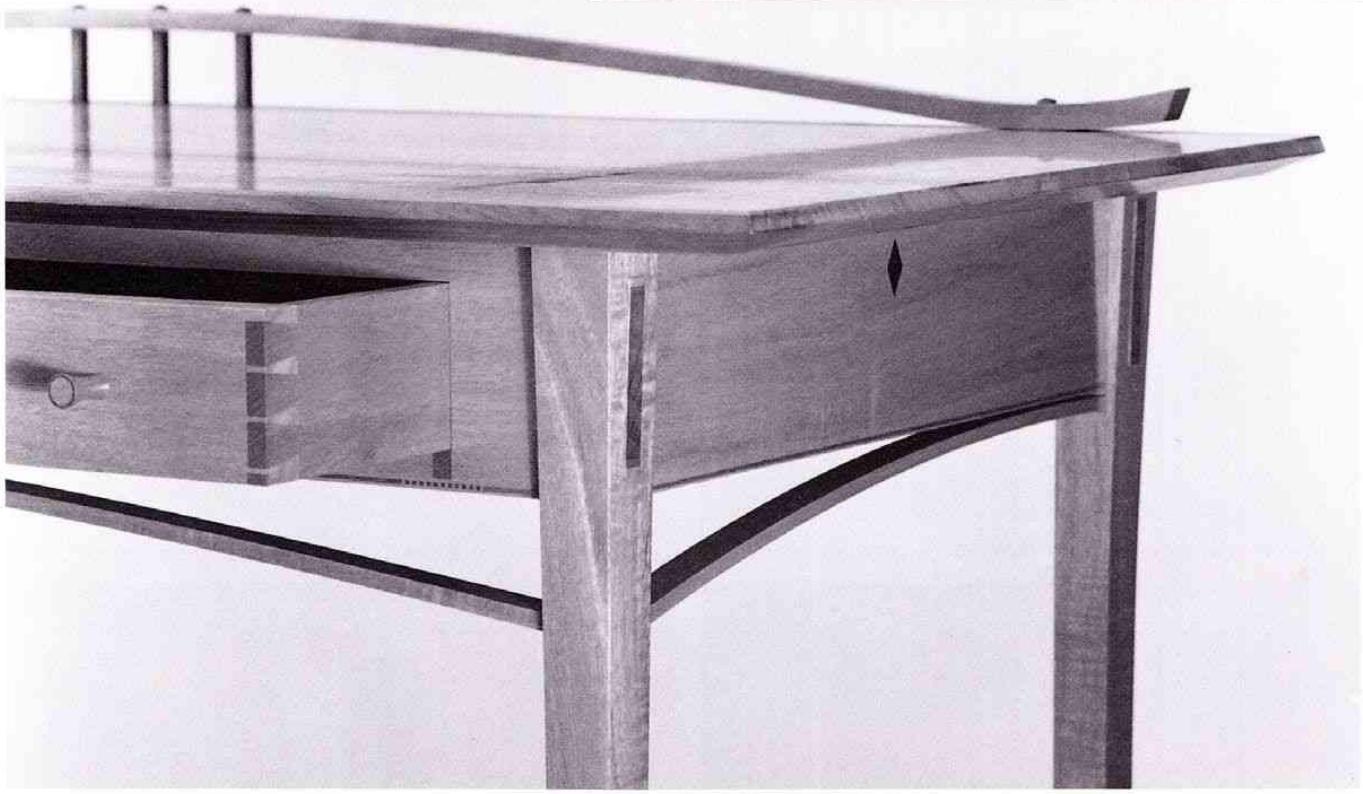
EXHIBITIONS



DV8 by Neil Erasmus, Winner—Contemporary and Urban Objects Made of blackbutt, sheoak, leather and mother of pearl, this finely made desk featured exposed joinery and subtle detailing.

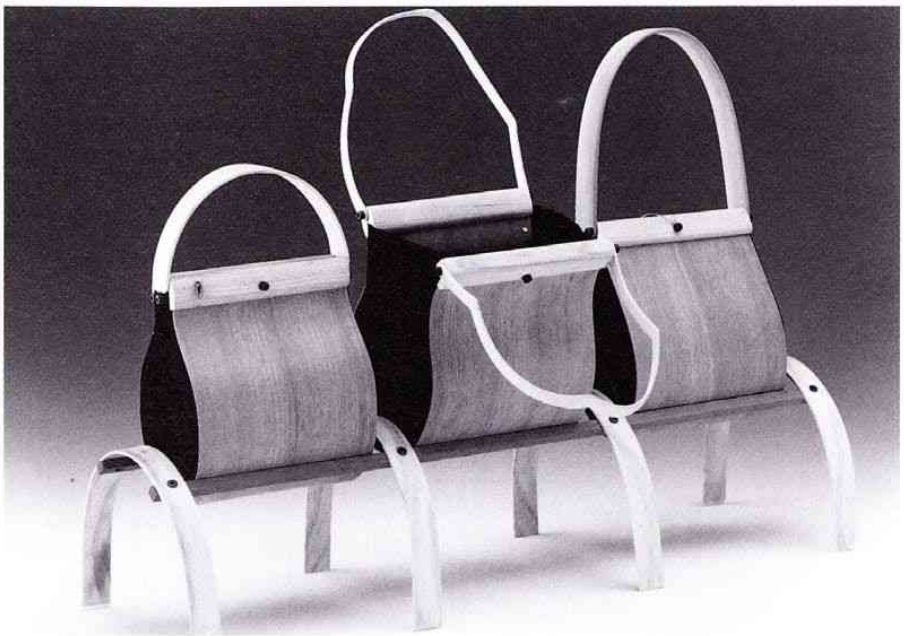
The Wesfarmers Fine Wood Awards

Central Park, Perth, November, 1997
Reviewed by Linda Nathan

In Western Australia people who earn all or part of their living by crafting wood are known collectively as the 'fine wood industry.' The government of that state has recognised that this industry, even with an estimated annual net worth of only $10 million and a workforce of around 250, has significance for the potential it holds.

This industry has its own government- and member-funded association called the Fine Wood Industry Project, which exists to nurture and promote its endeavours. While the industry is undeniably benefiting from the efforts of FWIP, there is probably more economic flow-on for the timber production, processing, larger scale furniture manufacturing and merchandising industries of that state.

The benefits which high profile events such as this bring to the timber industry are manifest. The growing public appreciation of natural feature gradings and lesser known species, many of which have formerly been used only for structural purposes, makes a reality of the push for value-adding to Australian-grown timber. By focusing in particular on the indigenous species of Western Australia FWIP is hoping that WA will eventually become known for its fine timbers in the same way that Venice is known for its glass, or England for its fine china. In fact, FWIP has the objective of making WA the fine wood centre of the world!



West Australian Reticules (set of three bags) by Joy Design. Made from native timbers, hides and alloys.

EXHIBITIONS

***Total Freedom*, timber, MDF, silver, Greg Collins**

Cabinet by Malcolm Harris, silver ash, myrtle veneer, MDF.

Above: The *Dream* Desk by James Howieson Design, curly jarrah, sheoak.

With this and other aims in mind, the FWIP mounted an exhibition at the end of 1997 which was two years in the planning stages and six years after its last 1991 event. Entries were juried, each maker submitting a folio to gain acceptance. A curator, Paola Anselmi, late of the Art Gallery of WA, was appointed to assist, advise and encourage entrants prior to the event, as well as co-ordinate the final display and the exhibition catalogue.

I was honoured to act as a judge with four others for the exhibtion. While it is one thing to blow into an exhibition and criticise and compare willy-nilly, it is another to have the shared responsibility of selecting award winners from such an outstanding field. In short, being part of the judging process certainly gave me a unique perspective on the awards criteria.

***Tranquillity in Simplicity* by Jack de Vos, Winner—WA Abroad category. De Vos's vase is turned and carved from coastal jarrah. The brief for this category was for easy to carry collectables that were distinctively Western Australian.**

***Co-existence* by Jeannette Rein and Brenda Ridgewell, Winner—Collaborations and Partnerships Jarrah, sterling silver, stainless steel. The judges commented that 'the distinctive character of each artist's work remains visible, yet together they create a surprising unity of vision.'**

Four awards of $2,000 were presented by major sponsor Wesfarmers Limited, who also contributed towards the running costs. The aim of the awards, according to Fine Wood Industry Project Officer Jane Tillson, is to hold a biennial showcase for the industry which will ideally be displayed in a high profile central city location. In 1997 those aims seem to have been met.

The giving of awards is obviously a

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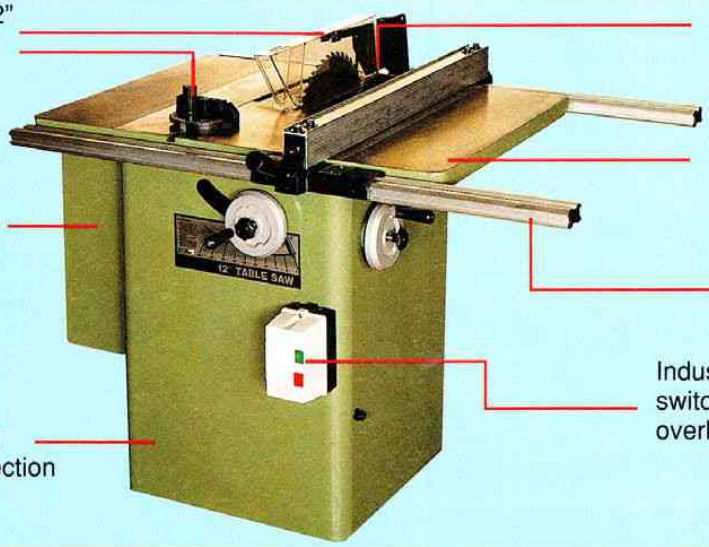

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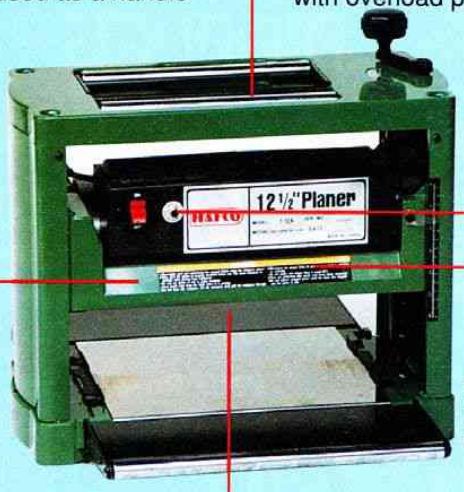

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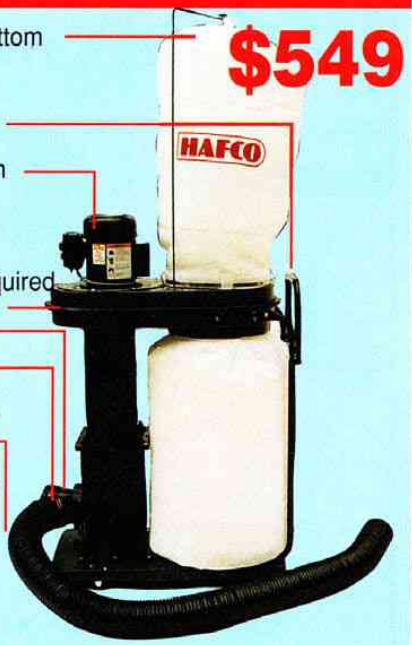

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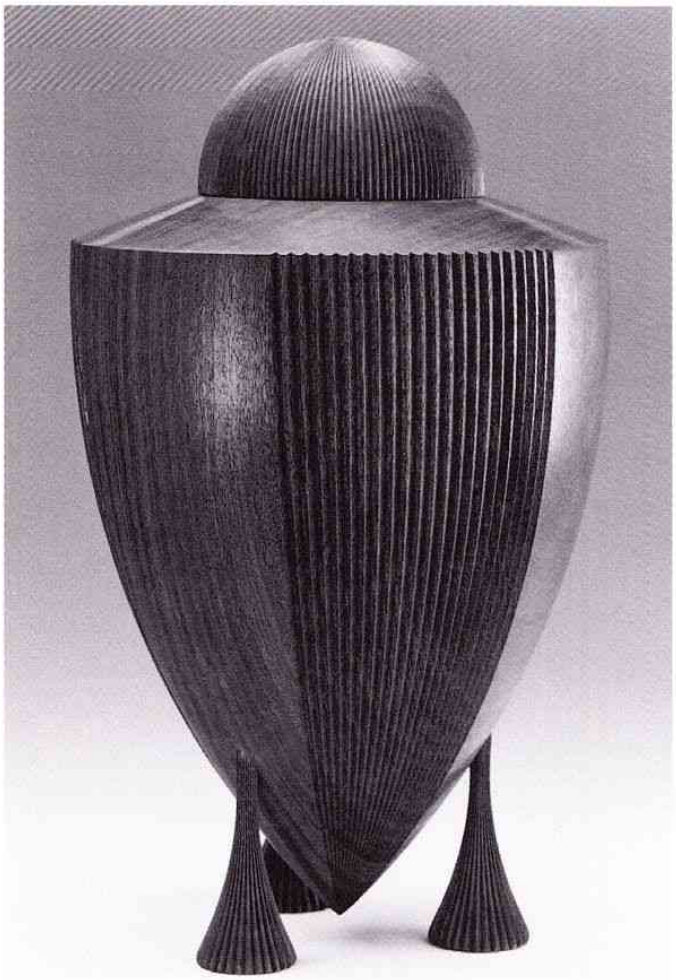


Above: Turned and carved form by Dean Malcolm. Top right: Hallway Table in tuart by Mano Kunzler. The components of the table were turned on a lathe. Right: Elegant Sufficiency, made from sheoak by Dawn Ferguson.

good way to motivate makers to excel and experiment. There is prestige and cash to be had for the winners, the selection of whom can, especially if controversial, make good copy for the media. All this hopefully snowballs on to greater sales and glory for the makers.

While there was no controversy involved, the exhibition did break new ground by dispensing with the categories by which we habitually judge examples of woodcraft. Part of the rationale of the advisory committee was, according to Robert Bell, Curator of Craft and Design at the Art Gallery of Western Australia and committee member, to move away from a technique-based award system. Another idea, he said, was to create a challenge to which the makers could respond to. The categories were framed with certain markets in mind and to prompt new thinking.

There was also the intention of allowing comparison between different styles, philosophies and forms while, as stated in the entry brochure, providing 'a common ground in each category in which to attract a range of design styles and product types. The category titles are about sensibilities rather than a sense of place'.

Evaluating pieces on the basis of the technique by which they were made is quite appropriate when that exhibition is mounted primarily for the benefit of a woodwork club. When the objects and the exhibition itself is directed to a wider consumer audience who will primarily be interested in the desirability, function and excellence of manufacture of those objects, the technique of their making is not of prime importance.

While the decision to move away from the traditional categories was correct in the context of the Wesfarmers Fine Wood Awards, the resulting groups of entries were quite disparate in terms of scale, style, method of production and intended market.

Two of the four categories were straightforward in the attributes they sought to encourage. *WA Abroad*— 'easy to carry collectables that are distinctively Western Australian' and *Collaborations and Partnerships*— 'to encourage collaboration with practitioners and designers within and out of the industry.'

The other two categories seemed unfortunately to be created with much the same idea in mind. *Contemporary Urban Concepts* and *Country Essence* were both framed with the one description 'work in these categories can be for the home, workplace or public

Mirbelia, sheoak, Peter Lowe.

Unity in Diversity, Jack de Vos, Rose Indich.

Chest of Drawers, Philippe Brooks Fine Furniture, blackbutt, jarrah.

Music Setting by Joy Design and Kathy Ready

Corporate Dining Furniture by Glen Holst Furniture, Winner—Country Essence. An innovative, purpose-designed extension system gives this jarrah dining table an easy flexibility, seating up to 22 people. Inlay of mineritchie and mulga features on both chairs and table. The suite represents 782 hours of work.

spaces in city or country surrounds'. Whilst the organisers intended to limit the number of categories they also hoped to not force makers to pigeon hole their work. In fact, that fear became a reality as it was clear a number of makers chose either of these categories by default. What could not be comfortably labelled 'contemporary' was shifted to the 'country' category and vice versa.

Ironically the categories which were the best defined had the lowest number of entries in them. The best odds were in the WA Abroad category with a mere six entries, followed by *Collaborations and Partnerships*. The most highly fielded *Contemporary Urban Concepts* had around twenty-two entries, other groupings were unequally divided and thus the race appeared somewhat handicapped from the outset, with regard to winners and losers.

Admittedly this situation is not unusual however with only thirty-odd entries the problem with the categories could have been completely overcome if the entrants had not had to nominate a category at all. Speaking as one of the judges, I feel it would have been fairer to select for the chosen attributes from the entire field of entries. Merging or redefining the contemporary and country categories would elimate the confusion as to the meaning of the two, a distinction which I found nebulous.

In some ways the Wesfarmers Fine Wood Awards was a watershed for exhibitions of fine woodwork. Moving away from the traditional technique-based categorisations is a step towards appreciating objects on the basis of their own intrinsic worth and appeal which should in no way detract from criteria of soundness of manufacture. In an ideal world perhaps no judgements and comparisons between the work of two artists or makers would be made, but undoubtedly it is competitions like this which stimulate extraordinary efforts of creativity.

Photos: Martial Fatton

Mik International

" The Place to Shop for Quality Handtools & Machinery"

Skew Block Plane

Derived from the Stanley No 140 this is a block plane with a skewed blade and a removable side piece to allow quick conversion to rabbeting. The set of the blade has been lowered to 12° and an adjustable fence added. Manganese bronze castings, 1 1/2" blade. Extra weight (2lb) and skewed low angle blade facilitate smooth, sure cutting.

LIE NIELSEN TOOLWORKS—full range available

Low Angle and Standard Block Planes

These small bronze planes fit perfectly in the hand. Stainless steel adjuster offers blade control of micrometer ease and precision with minimum backlash. Low Angle Plane blade is bedded at 12 1/2" for fine cuts and end grain. The Standard Block Plane is set at 20°.

Hegner MK4 Combination

Circular Saw
Cutting height 0-35mm (1 3/8") for wood, speed 5600rpm/1400rpm, motor 350 watt.
Router
Collet chuck to accept router cutters with dia. 8mm (6.35mm/1/4") and 6mm optional accessories)
Capacity: 450 watt continuously rated.
Router Sander
Sanding disc dia. 125mm (5"), velcro sanding discs
Precision Chuck
Range 1-10mm thread for drill chuck 3/8"
Accessories: Sliding worktable extension table, lathe attachment, slot morticing attachment, machine stand

Bronze Scraping Plane

This scraping plane is an unusual size and proportioned to be used with one or two hands. Inspired by the Stanley No 212 this tool is ideally suited to a thousand finishing jobs.

It will take the finest of shavings producing smooth surfaces and crisp edges. The blade is 1/8" thick and bevelled at 60° and is easily and precisely adjusted. Made of bronze brass, tool steel and cherry.

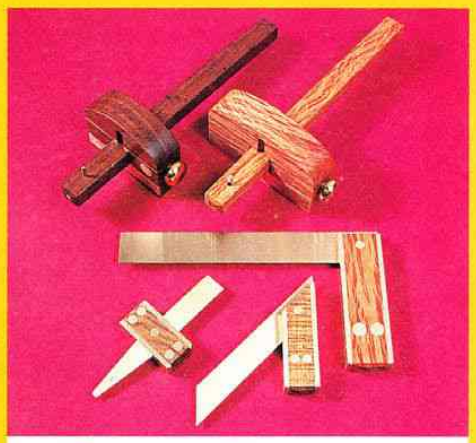
Chisel Planes

Available in original and half size. A chisel plane is different from a bull-nose in that there is no support at all ahead of the blade, which makes for poor planing. But as a clean up tool with the blade set flush with the sole, this plane will excel, removing glue, trimming plugs and dovetails flush, or cleaning into the very ends of rabbets.

Mik International
504 Glynburn Road,
Burnside SA 5066
Ph: 08 8333 2977
Fax: 08 8364 1685

Ashby Low Angle Australian Made Block Plane

Inspired by the legendary Norris the sole measures 162 x 62mm while the body is cast from Admiralty gun metal with a higher tin content for extra hardness. The blade is a magnificent piece of precision ground high carbon tool steel, 50mm wide and hardened to Rockwell 62°. Wood infills and details made from Australian inland timbers.



Colen Clenton Hand Tools

Australian precision-made marking gauges and recalibratable squares. Full range available.

Hegner Multi-Cut 1 Fretsaw

Gooseneck: 365mm
Height of passage: 50mm
Max cutting height: 50mm
Size of cutting table: 380x180mm, 45° tiltable
Length x width of machine: 520x270mm
Saw blade stroke: 15mm
Motor: AC motor, 230 volt, 50 cycles, 80 watt
Net weight: approx. 16kg

EXHIBITIONS

Tilt

Students of Box Hill Institute of TAFE, Commonwealth Bank Building, Melbourne, December, 1997.

Subtitled a 'contemporary furniture exhibition balancing the lines of product and design' *Tilt* featured the work of eleven graduating furniture design students from Box Hill TAFE.

The exhibition was both a statement of their achievements and a launch for their new careers. The same group exhibited with some success at the Furnishing Industry Association of Australia's annual showcase 'Furnitex' in July this year.

Box Hill TAFE's Furniture Design course grew out of the old Associate Diploma of Wood Design. The new curriculum acknowledges the new emphasis on design in the arts, furniture and timber industries. The exhibition was sponsored by Mathews Timber, the FIAA and Timber Promotion Council of Victoria.

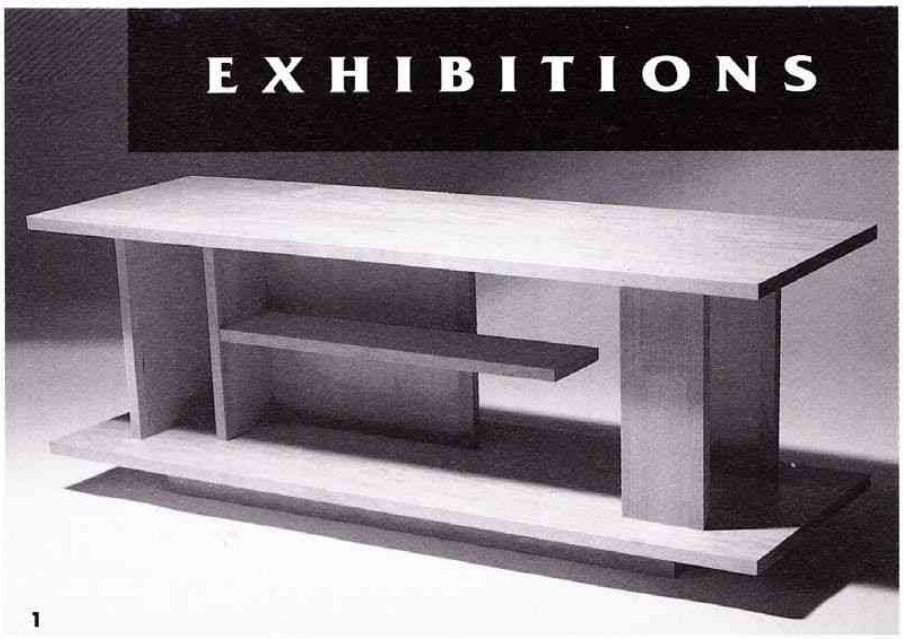
1 ***Lowe Table***, American rock maple veneer and solid, Andrew Lowe.

2 ***Peninsula***, myrtle veneer, neoprene, Luke Roberts.

3 ***Seedling***, sassafras, suede, Greg Dibley.

4 ***Spring Joy***, red cedar. Greg Dibley

5 ***Wilma***, hoop pine, Brad Folletta.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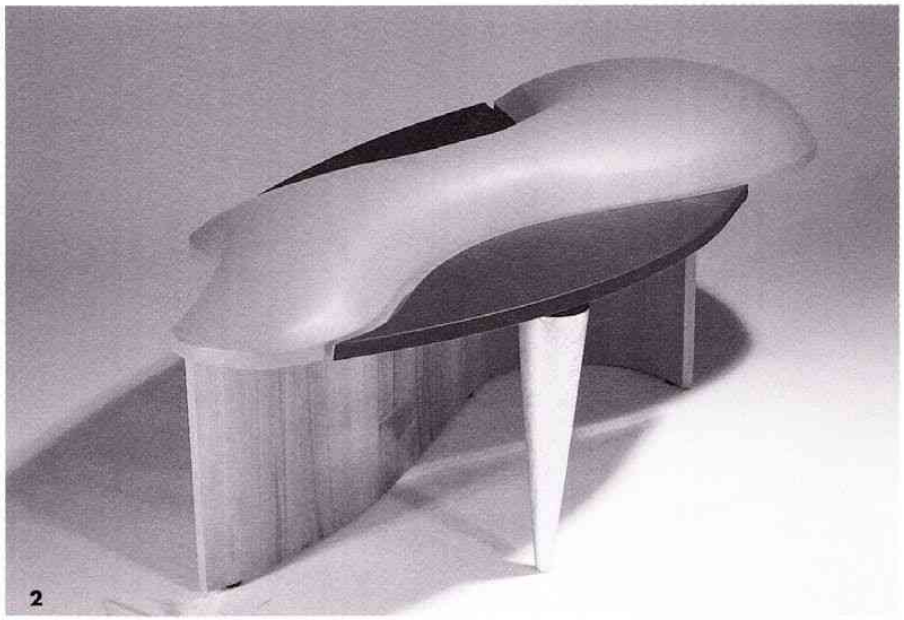
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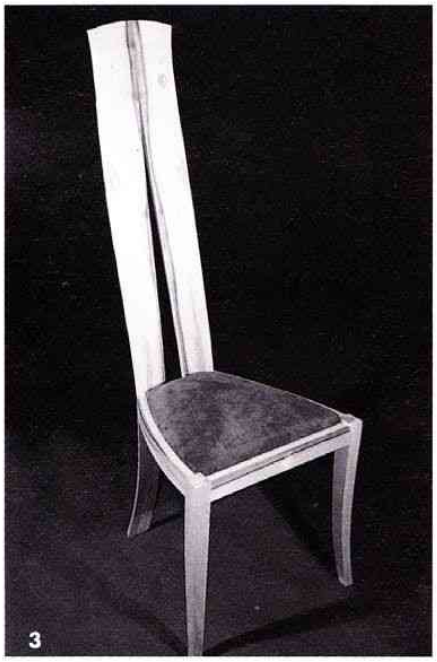
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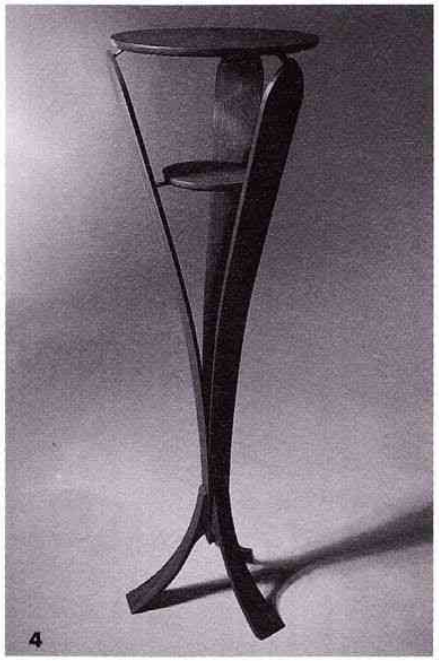
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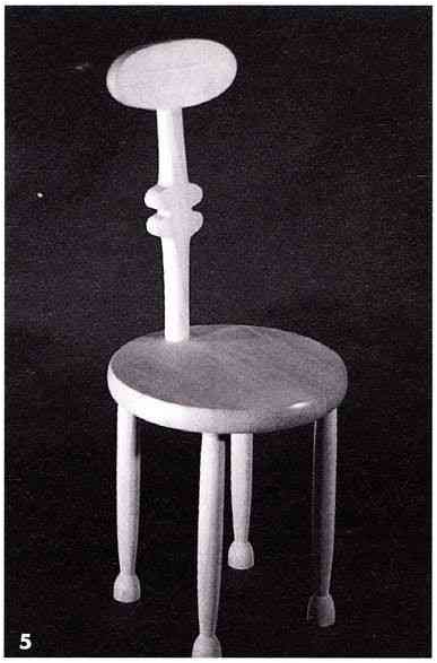
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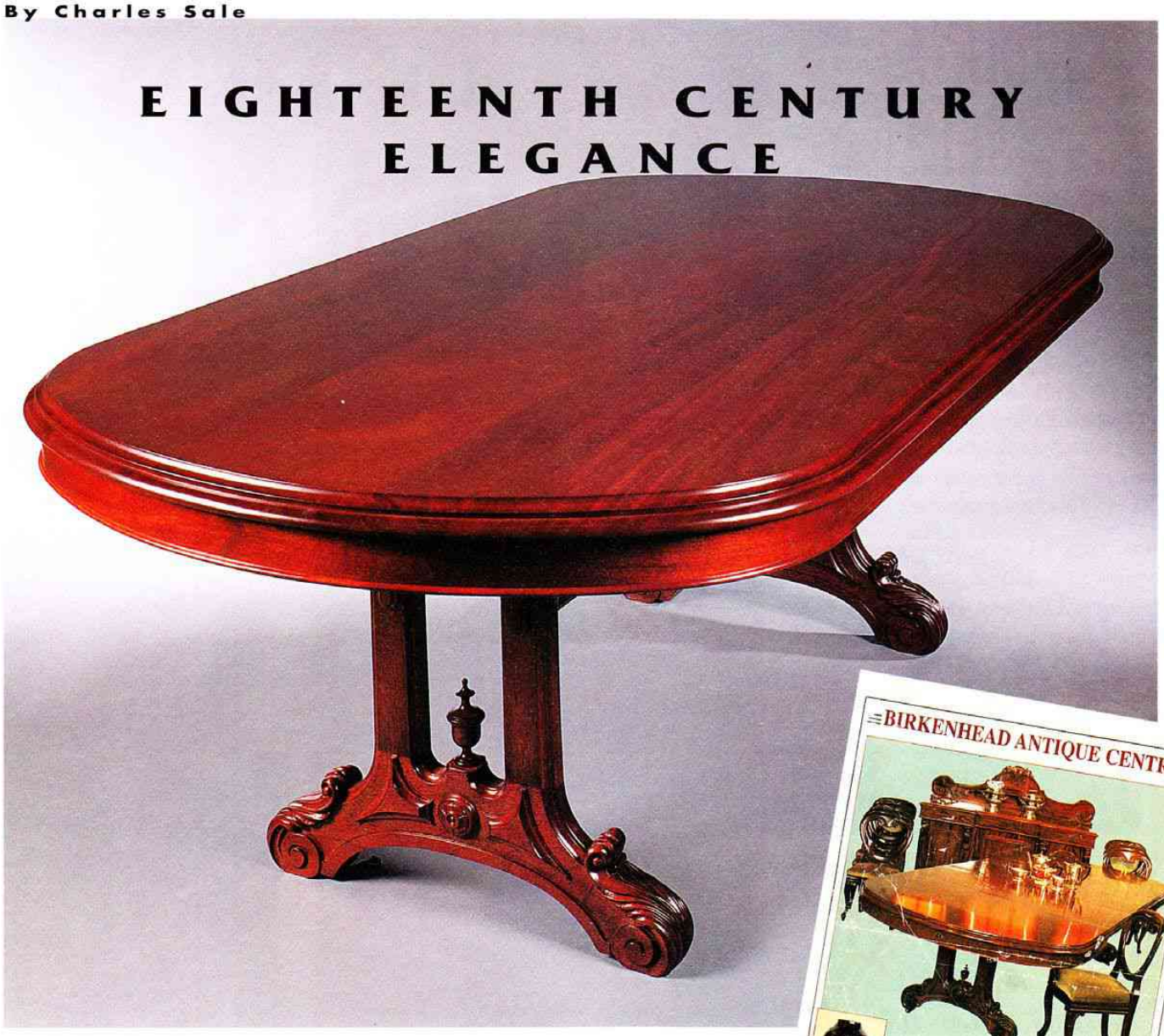
By Charles Sale

EIGHTEENTH CENTURY ELEGANCE



English furniture has long been characterised by the name of the monarch who ruled at the time of its making. We can now refer to furniture as being Queen Anne, William and Mary or Georgian, to name just a few styles.

At the dawn of the 18th century England was enjoying a new prosperity. Trade was booming and fortunes were being made from speculative building projects—sounds like the 1980s revisited. In the early 1700s walnut was the most commonly used wood until a devastating winter in Europe in 1709 resulted in a scarcity. The void was filled by imported timbers from the Americas. Mahogany, previously used as ship ballast, began to be advertised for sale as timber for furniture and architectural fitments. With the abolition of import duty on timber in 1733, the popularity of mahogany was assured.

With a change of timber came a change of the predominant decorative detail. Highly figured walnut was extensively veneered, while the mahogany which was imported early on had a plainer figure, making it more appropriate for use in the solid. The strength of the timber made it possible for large boards to be produced for table leaves and larger panels. Decorative carving came back into vogue in the 1700s, but with a new look.

The table shown here was commissioned by a client who sent me a page torn out from *Carter's Homes, Antiques & Collectables*, a periodical which is published in NSW. This featured an advertisement for a William IV (1830-1837) mahogany dining setting, circa 1840, with a price tag of $12,500.

My brief was to construct a similar table which would comfortably seat six to eight people. A size of 2000 x 1100 x 760mm high would allow for approximately 600mm per setting and fit comfortably in the client's dining room. Obviously they were also hoping that the table would suit their budget by costing them less than the genuine article. Brazilian mahogany was selected for its suitability to the period and its easy to carve nature.

Set Out

A set-out is a full size drawing or plan of a piece which becomes a permanent record for future use. It should contain all the information required to make the piece, including dimensions, materials, construction methods and instructions on placement of components. Generating an accurate list from the set-out should then be a simple matter. For this one-off commission I used a sheet of 3mm MDF to draw top and end views. This enabled me to make templates for the rim section of the underframe and detail of the two supports which would be carved in a similar fashion to the original in the magazine clipping.

Top

Before gluing up the top I arranged the timber to create a continuous flow in the end and surface grain patterns. I finger-jointed the boards on a spindle moulder—this is an effective way to align the boards while providing great strength. After glue-up the panel was left to dry overnight. An oval template which was made from the set-out was clamped to the panel and the shape then cut out with the bandsaw. The edge of the top was routed with an ogee-shaped cutter prior to sanding.

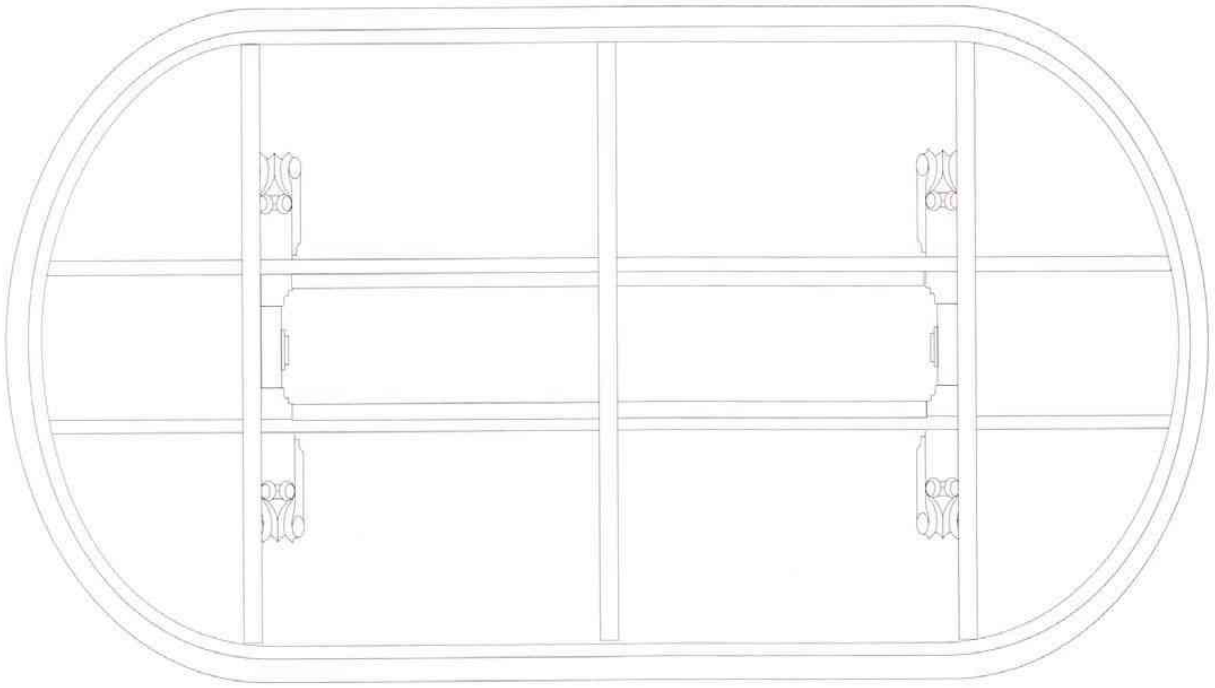
The lower section of the edge with its bullnose profile was built up with 65mm wide strips of mahogany. The strips were shaped with the router before being glued and screwed to the top. It is important that the grain of the edging runs in the same direction as that of the top to avoid restricting the movement of the timber. The crossgrain edging strips were made from offcuts of the table top, which was cut 140mm longer for this reason.

Rim

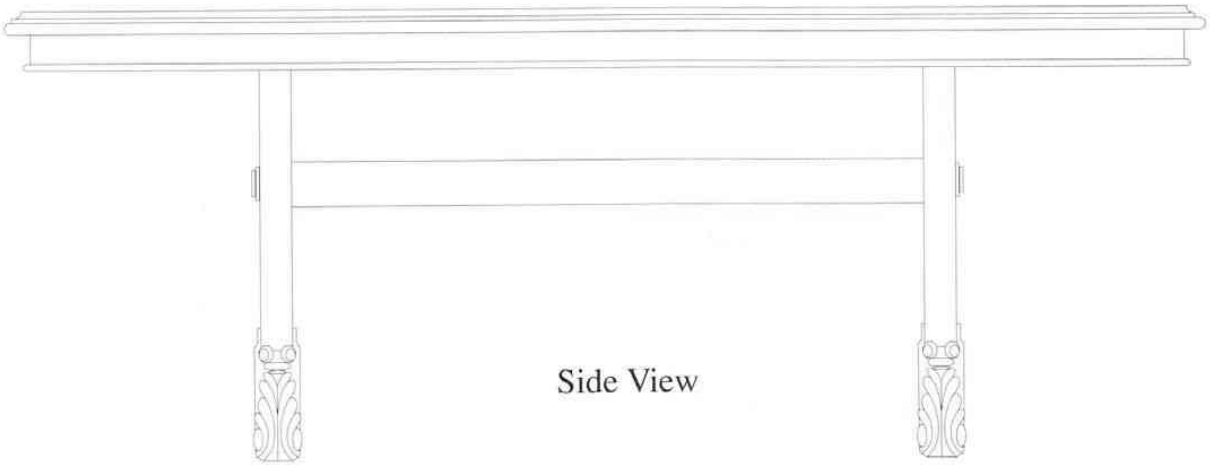
There are several ways of producing curved frames. The method I chose was to laminate strips of timber brick fashion. From the set-out I made three templates, and using 17mm hoop pine cut to shape, I overlapped and glued three layers of hoop pine aligned to the set-out to make both curved ends of the rim.

End View

Full Size
Section of
Top & Rim



Phantom Top View



Side View

The layers are cut on the bandsaw as close to their final shape as possible. The ends which butt together were sawn and planed to fit. The middle layer was left to protrude 20mm at the end of the curve and this became a tongue for the join between the rim and the straight length joining the two rims. A dowel was inserted at right angles through this tongue for strength. The rim was carefully cleaned up with a belt sander and the outer face veneered with mahogany. I started at the middle of the curve and used two pieces of ply and as many clamps as I possess to press on the veneer. I only veneer a section at a time and run the clamps well past where I apply glue, after the section dries I repeat the process until the whole rim is veneered.

Cross members to locate the carved leg sections and strengthen the rim frame are notched and glued into position. A 10mm thick cocked bead is then applied to the bottom edge of the rim, as not only a means of decoration, but also protection for the edge of veneer. Wooden buttons were used to secure the top in position on the rim. These allow the solid timber to expand and contract with changes in humidity.

Carved Leg Sections

These consist of a horizontal base, two vertical uprights and another horizontal section at the top. Two rails join the base sections. The bases were cut from 75mm section mahogany and were mortised to allow the 50mm thick vertical uprights (also mahogany) to be centrally tenoned into them. The uprights were moulded prior to gluing up. A short piece of hoop pine is dowelled at the top for strength and to ensure they remain parallel.

The next step was to rout out the horizontal section to produce the triangular panels and carving outline to a depth of 12.5mm, flush to the line of the uprights. This procedure was rather tricky with a 2hp router. In a larger workshop an overhead router would perform this operation with ease, however the result achieved in this case was satisfactory. The uprights were also moulded in the same way.

The carved flower lozenge and finial were turned and carved separately and applied after the scroll and acanthus leaf feet were carved on the feet of the bases. The cleaning up of the triangular panels completes the uprights before the two horizontal rails were tenoned into them. These were fixed with knockdown fittings to facilitate transportation. Cover plugs were made and positioned with 6mm dowels.

Finishing

The quality of a finish can make or break a piece of furniture so many hours were spent sanding and resanding the top and base to remove blemishes and cross-grain scratches before achieving the smoothest surface I could possibly get. The mahogany was stained with reduced *Mirotone* cedar stain and sealed with two light coats of shellac. After light sanding and a single coat of lacquer, the colour was built up again with more reduced stain to match the client's other furniture. Four coats of *Wattyl Stylwood* lacquer were applied to achieve the required lustre.

The successful making of solid timber furniture is highly satisfying, and this is doubly so when the client, as happened in this instance, was enthusiastic about the finished work.

THE BISCUIT CONNECTION

Since their appearance on the market in the 1970s biscuit joiners have become a basic cabinetmaking tool, in fact if you haven't got one, you should be seriously considering getting one. They are fast, portable, and very accurate—and hence, a real value-for-money tool. They ease the pain of making the joints you sometimes avoid (mitres for example) and therefore expand the range of projects you may be willing to undertake. In addition to this the joints they produce are extremely strong.

A biscuit joiner is basically an angle grinder fitted with a small tungsten-tipped sawblade and an adjustable fence that indexes from the workpiece. The precisely cut, crescent-shaped grooves which result play host to compressed timber 'biscuits' that, when glued and inserted, expand to make a strong, tight-fitting joint.

The tool actually cuts a groove slightly longer than the biscuit, allowing a certain amount of sideways adjustment for alignment before the glue sets. For gluing of table tops the biscuits align the surfaces and hence reduce sanding and clean-up times. Frame-joint cutting for cabinets or panel constructions such as kitchen cupboards are dramatically sped up and simplified, in fact almost all cabinetwork will benefit from biscuit joining.

Selecting a Biscuit Joiner

Look for accuracy in manufacture of the tool such as squareness in the faceplate, base and fence. Check they are flat and well-machined to ensure accuracy in cuts. Check the type of sawblade supplied, most offer six teeth per blade while others offer 12 tooth blades. Dust collection is obviously important, most tools have a dust bag while others may only have a dust port for connection to a vacuum system.

Tough Bikkies

The biscuits are usually made from solid beech or rose mahogany and can cost up to three cents each, which over a number of years represents an investment worth preserving. They should be stored in an airtight container so they don't start expanding with humidity before you are ready to use them. To overcome short grain problems the grain of the wood in the biscuits runs at an angle, this combined with a generous gluing surface area and an expanded tight fit make for extremely strong, permanent joints.

The biscuits are available in three standard sizes: No 0, No 10 and No 20 which are 16, 20 and 24mm deep respectively. All biscuits are 4mm in thickness. Some manufacturers produce extra biscuit sizes to complement their joiners (*Lamello for example, have No*'s 4, 6, 9 and 11 on the market), however the three standard sizes will fulfill 95% of most cabinetmaking requirements. Biscuits are purchased separately from the tool and although some manufacturers produce their own biscuits they are all interchangeable.

There is also a wide range of accessories and special biscuits for knockdown applications, benchtop assembly and other applications such as awkward angle connections. *Knapp* have a good selection of these fittings. Check that the tool you buy can cut for these fittings, some tools only cut the three standard sizes.

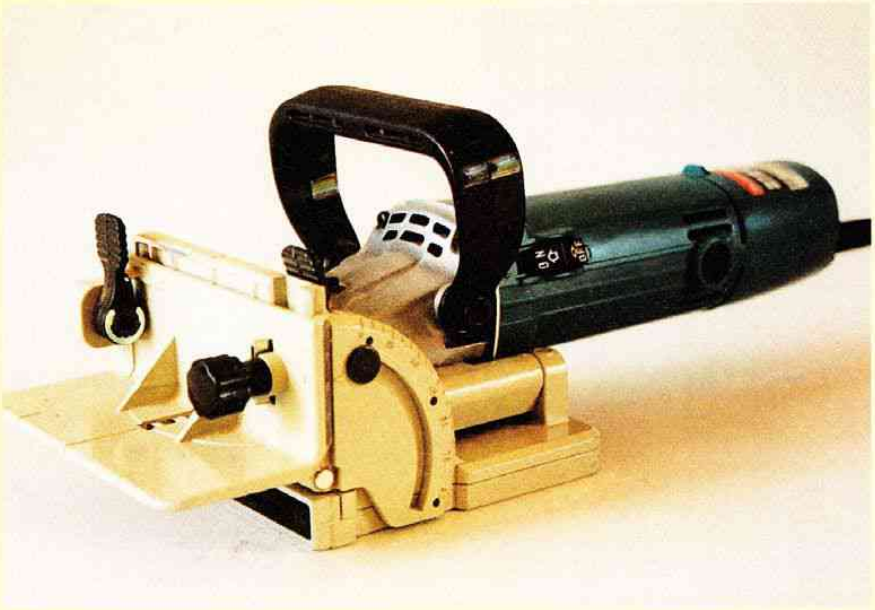
How to Biscuit Join

The basic rule of woodwork applies to biscuit joining—measure twice and cut once. Another point is that the more biscuits used the stronger the joint (within reason).

1 Set the cutting depth which is the

Makita 3901

Made in Japan, $459, 2.6 amps, includes dust bag. Fence uses an excellent rack and pinion system for height adjustment with a good scale. Angle fence has scale and pre-set indents. The switch is a bit fiddly. The fence design offers good support while limiting the exposure of the blade to the operator.

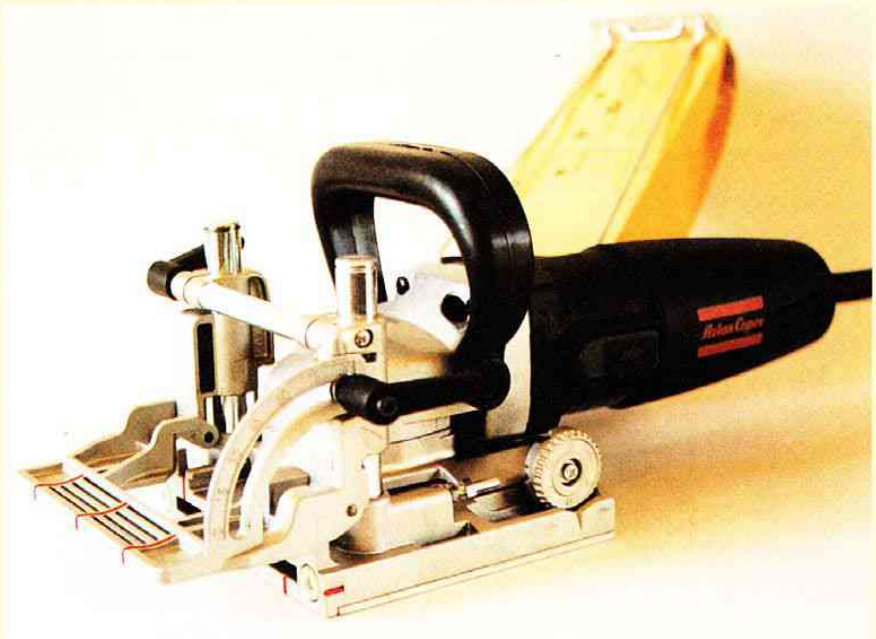


De Walt DW682K Plate Joiner

Made in USA, $479, 3 amps, includes dust bag. Very well made and machined fence. Has rack and pinion height of cut adjustment with good scale. Fence has angle scale but no pre-set indents. The switch is well placed under machine and very easy to operate. Base is a little heavy and the fence could be larger to offer more support for the tool when cutting.

Atlas Copco PJ710

Made in Germany, $590, 3.2 amps, uses disposable paper dust bags. The very nicely made fence offers an angle scale with pre-set indents. Height of cut adjustment is via a travel on machined guides with a good height scale. The switch is stiff to turn on but easy to turn off. The tool also uses an extra plastic plate as a fence to limit the exposure of the blade to the operator.



Bosch GUF 4-22A Biscuit Joiner & Grooving Saw

Made in Germany, $479, 2.7 amps, no dust bag but dust port. This tool operates differently, the face plate and base of the machine stay in position while the body is swung into the cut. It also allows the hands to be well clear of the blade. The switch, although stiff to use, is otherwise OK and well placed. This is a tool that will trim panels, saw grooves and cut biscuits and therefore when used as a biscuit joiner alone has some compromises, for example there is not a lot of adjustment with height of cut.

Lamello Classic

Made in Switzerland, $604, with motor and housing made by Metabo, 2.9 amps, no dust bag but has dust port. Switch well-positioned on top of machine and easy to use. Very smooth motor with ample power and the fence mechanism is also smooth. No scales on fences for angles or height of cut. Straightforward design. A very well made and strong tool but at the price does lack some niceties. Lamello actually devised the whole biscuit joining system many years ago and also offer the *Top Ten* and the cordless *Dynamic*.

amount of plunge of the saw into the timber. This identifies the slot and the corresponding biscuit size to be used. Use the largest size biscuit possible (usually No 20) to ensure a strong joint.

2 Set the fence for the cutting angle, be it 90° or otherwise and adjust for the height of cut according to the thickness of the wood.

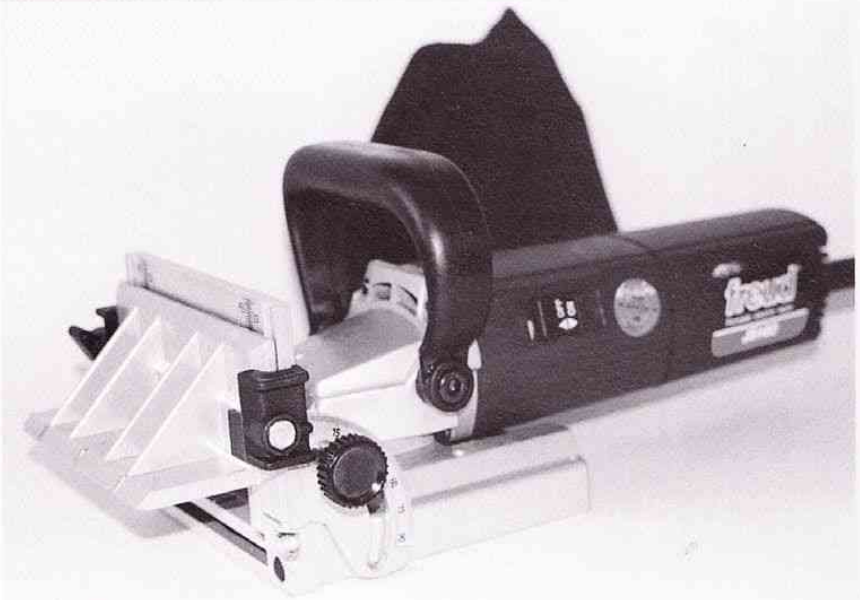
3 For safety, clamp the workpiece before cutting the joints. Carefully plunge the tool and make the cut. Check the fit before applying glue. If the material to be joined is thicker than 25mm consider using two biscuits aligned on top of each other for double the strength.

4 Squirt a small amount of glue in the grooves—there should be glue on both sides of the cut. Special glue dispenser bottles are available. Tap in the biscuits and bring the workpieces together and clamp. You will need to work fairly quickly because as soon as the glue hits the biscuits they start to expand.

Safety and Biscuit Joiners

Despite the benign name the inherent dangers of power tools are equally applicable to biscuit joiners. All wood being subjected to the force exerted by a tool operating on 590 watts and 11,000 rpm is a potential projectile so make sure it is clamped to a solid surface. One of the biggest concerns, however, is the fact that almost all models tend to predispose the operator to balance the weight of the machine by leaning with the thumb on the front end of the joiner fence, only centimetres away from a sharp blade moving at high speed. While it would be hoped that slipping in this position would lead to nothing worse than some damaged stock, always be aware of where your fingers are in relation to the high speed blade.

Apart from the obvious, always turn the machine off at the switch before carrying, changing accessories or making adjustments. Wear eye, ear and respiratory protection. When changing blades make sure the blade teeth are facing the correct way. Always follow the operating manual and read instructions closely.



Freud JS 102

Made in Spain, $459, 3 amps, comes with dust bag. Fence has height adjustment via machined guideway with a scale, while the angle fence offers a scale but no pre-set indents. Switch works well. A strong tool offering straightforward performance but lacking a refined fence system.

Ryobi JMK100

Made in Japan ,$429, 2.6 amps, comes with dust bag. Unlike other tools which have cast and machined fences this one has a pressed steel fence, although this works well. Height of cut adjustment mechanism is fairly simple with a scale, while angle tilt has no scale as such but pre-set indents. The fence design limits the exposure of the blade to the operator plus the raised handle offers very good balance and possibly safer use. Switch is OK and the motor runs smoothly.

Maintenance

Keep the blade sharp and clean for safer and more accurate work. Avoid damage to your tools by treating them carefully—any bent surface will inevitably lead to inaccuracies in cutting. Ensure the dust port is kept clear of accumulated debris and lubricate any moving parts as required.

What's on the Market

Joiners vary in price from around $400 up to $600. They operate at around 8,000—12,000rpm and draw anywhere between 2.1 amps and 5 amps of power. Generally they put out around 95 decibels, though this can go up to 100 dB when operating, hence the need for ear protection. All tools we saw came with steel or plastic carry cases. Warranties vary with each manufacturer so check before you buy. The prices quoted here should be seen as a guide only; sales tax has been included. Also worth noting is that there are a few aftermarket attachments that convert angle grinders and routers into biscuit cutting tools.

The *Makita* had a lot going for it with a nice rack and pinion fence, plus the fence offered good support and operator protection. The on/off switch though is annoying. The *Atlas Copco* is a good all-rounder in regard to operator protection, refinement and overall design. Locking the fence height by a lever is acceptable, but not great. The *DeWalt* has a very good fence rise and fall system, switch and general feel, although it did seem a little bottom heavy in use. A larger fence would be better as it would offer more tool support and operator protection.

Conclusion

All the tools we saw offered good performance and accuracy. The differences seemed to be in price (fairly important) and the refinement of the fence mechanism. Any of them would be an asset to your toolkit.

Biscuit Joiner Suppliers
Woodman Group **Freud** *(02) 9708 3233, (03) 9555 5199, (07) 3844 4433, (08) 8346 4561, (08) 9272 3844*
Power Tool Specialists **Bosch, Makita, Freud** *(02) 6280 4966*
The Woodworks Book & Tool Co ***Freud*** *(02) 9807 7244*
DeWalt *Power Tools 1800 816 900*
MacDonnell Rd Hardware **Ryobi** *(07) 3283 1558*

By Linda Nathan

PIONEERING FURNITURE MANUFACTURERS

West Australian furniture manufacturers BVR Furniture are breaking new ground with the use of feature grade marri, and showing that small scale solid timber furniture making can be profitable.

Main picture: BVR's *Vasse* table shows the extensive feature in NFG marri. Inset left to right, business partners Eric Van Rhyn, Les Brooker, Michael Brooker. Photos: Susie Van Rhyn

West Australian furniture manufacturers, BVR Furniture Pty Ltd, have seen some of the highs and the lows of recent decades. Prior to setting up in 1983, business partners Les and Michael Brooker and Eric Van Rhyn had the benefit of working with Catt Furniture, who unfortunately along with high profile names such as Artra and Lynx, have disappeared from the WA scene.

This, plus one of the greatest business learning experiences of all (near bankruptcy) has resulted in the development of a tightly run, innovative and profitable business. The partners' determination and drive to make a product that is different are masked by down-to-earth practicality, the result of spending every minute of the working day just 'getting on with it'. Undoubtedly pioneers in the use of marri (*Corymbia calophylla*) for commercial furniture production, BVR has done the necessary legwork and borne the costs of researching the potential of this species and balancing the economics of sawing, transporting, drying and marketing.

In the course of the partners' search for a light-coloured timber to use as a contrast to dark red jarrah a crusade was born. A jarrah supplier from Manjimup showed them samples of blonde-toned marri a few years ago. On testing it was found to be highly featured with gum vein and borer hole, had similar machining qualities to jarrah and held a stain. As well as pronounced gum vein or kino, around 25% of an average marri shipment contains a highly attractive curly or fiddleback figure.

Around twenty years ago, Les Brooker claims, before their potential as even woodchip was recognised, marri trees were heaped and burnt as forest residue. From 1994-96 marri (both bolewood and branchwood) production from crown land amounted to 8,070,528 cubic metres of a 10,748,626cm total chiplog. Brooker estimates this represents around 75% of all marri cut from CALM (WA's Conservation and Land Management authority) forest coupes, as only 10-25% is suitable for milling. Excessive kino and water cracks render the timber unsuitable for even structural purposes.

Marri dresser from BVR's *Red Gum* range

Research by BVR in conjunction with the CALM Timber Technology Unit at Harvey has now opened up the potential to value-add to this previously under-valued species. The efforts of BVR in this respect are now being formally documented in a research agreement with Forest and Woods Products Research and Development Corporation which is based at Bond University in Queensland.

The company has been given a grant to finance a number of reports on developing the commercial availability of natural feature grade marri for furniture manufacturers. Part of their study will also include the formulation of gradings for NFG marri (the company were instrumental in developing NFG jarrah gradings for Bunnings Forest Products) and documenting an effective drying technology. Most of the report will concern the company's efforts to market furniture made from marri, in particular their efforts to create an appreciation and demand for their products. The work is undertaken in conjunction with sawmills, CALM timber technologists, the Fine Wood Industry Project and, indirectly, with retailers.

The time involved keeping records and making regular phone calls and trips to Manjimup is considerable, but

BVR have made a commitment to raising an awareness and creating a technology for value-adding to this important WA timber species. Michael Brooker emphasises that the three felt quite passionate about their involvement. There is also a good deal of practicality involved in ensuring a steady and reliable supply of its major raw material.

Marri, whose characteristically straight trunks grow to thirty to forty metres in height, is also known as WA redgum or, despite its size, less flatteringly as 'the weed of the forest'. Along with spotted gum (*Corymbia maculata*) lemon scented gum (*C. citriodora*) and some of the other 'bloodwoods' which were formerly classified as part of the *Eucalyptus* genus, marri has now been re-classified as *Corymbia calophylla*. Bloodwoods are so named for the blood red exudate or kino which flows from the bark after injury. In the case of marri the injury is a reaction to the ascending spiral trail of the developing larvae of the phoracantha grub which pupate and then finally exit from a large hole.

Whatever the cause of its wildly figured appearance, sample furniture made from marri was instantly appreciated by the furniture-buying public and thus became one of BVR's two trademark species. BVR's annual $700,000 turnover represents around 1500 chairs, 160 tables, 300 coffee tables and 50-60 buffets of production. According to Eric Van Rhyn the company is growing by 12% annually, and in November 1997 orders were a third higher than at the same period in 1996. This is despite the fact, he states, that 'times are tougher out there but we have a good product and good retail support.'

'We straddle the craft and mass production market. In WA there might be four to five comparable set ups', explains Les Brooker, attempting to define where BVR lies on the furniture manufacturing scene, both scale and style-wise. Eric adds 'we undertake customised mass production where we produce small quantities in batches. This is very much a manufacturing trend of the 90s—we can keep our whole range up to date and manage a turnaround of six to eight weeks.'

Their product range is likewise limited for reasons of efficiency. There are five chair designs, six tables, three buffets and three coffee tables which are all available in either jarrah or marri. 'Furniture making is an intensive business. In a smaller set up it's easier to control stock and watch costs', says Les Brooker, 'in a big business it's easy to create sump holes where cash seems to just disappear'.

Over half their production is in marri and the demand is increasing, especially in the eastern states where the redder timbers are not as popular as in the west. Sixty to seventy per cent of BVR's production is NFG marri or jarrah and the demand appears to be growing. It's a trend which is, nevertheless, Les Brooker explains, still in its infancy 'we've watched our customers' consciousness change over the last five years. Environmental things are more prominent; they are wanting a more casual lifestyle and natural things. They don't want a select table any more—they like to see how the tree was in its natural state.'

Responsibilities are split between the partners. Michael is factory manager in charge of overall production, and works alongside staff and apprentices in assembly and finishing processes. Eric handles the marketing side of the business and liaises with retailers in addition to overseeing machining and production scheduling. Les is office manager, financial co-ordinator and company secretary and takes care of invoicing, credit control, and all the general form-filling in and bureaucratic details which the running of a business entails.

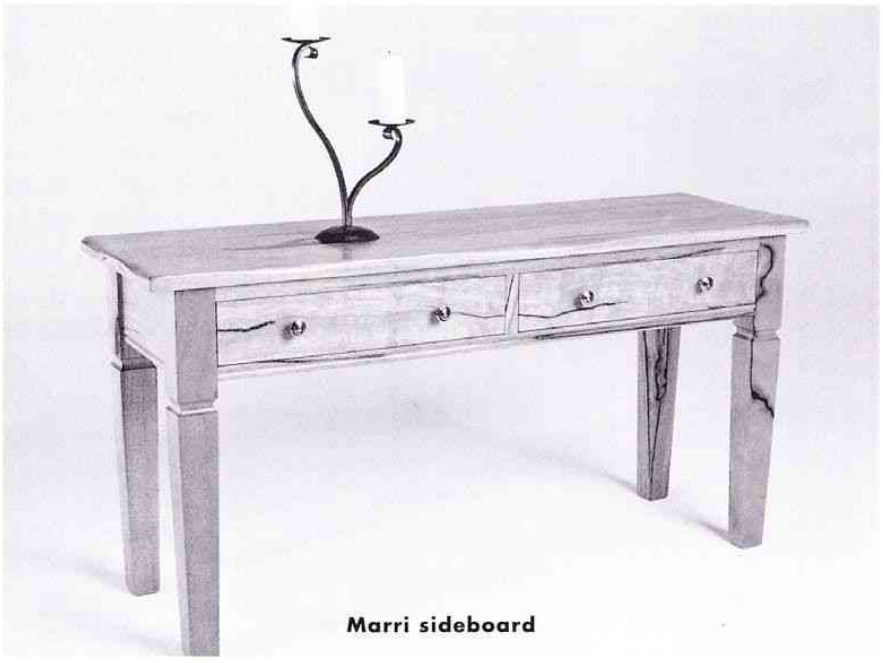
It is evidently a partnership that works and during my brief visit I formed the impression that not much that went on in the business escaped their attention. 'What it amounts to', explains Les, 'is cash flow out the door each week. We are one of the few companies who operate without an overdraft.

We went down in the late 80s after the stock market crash and since then we've operated strictly as a cash flow business. We travel mean and lean, we control our debts.'

Watching the money comes down to keeping a running sheet of in- and outgoings and doing bank reconciliations on a weekly basis in order to make sure there's a credit line. A company savings account is topped up weekly to cover lump sum holiday, group tax, sales tax and superannuation payments. 'A lot of small businesses don't account for every weekly expense so at the end of the year they might have to find $15,000 lump sum' says Les. A computer to facilitate office and bookkeeping activities is on order, however the religiously kept handwritten accounts have been enough to keep the books in the black.

BVR were one the first companies in WA to put workplace agreements in place. These are made on a three year basis, and the company is now coming up to its second round of agreements. 'One of the things we agreed on was that if we operated on a 38 hour week the factory was left empty for half a day. Instead of finishing at one on a Friday we work a 42 hour week.' The directors work on the floor and encourage enjoyment and the maintenance of a good working environment. Smaller batches create less boredom and higher quality, 'it's easy to get lost when you're machining 300 components at a time', explains Eric.

Dining suite in jarrah.



Marri sideboard

On the factory floor the imperative of efficiency is similarly evident, despite the obvious absence of high technology, which, Les explains, is due to the fact that most of the factory's output is in solid timber. Manufacture is no-frills quality production, mortise and tenon joints, tongue and groove panel joins on marine epoxies and high machine tolerances (down to 0.1mm to ensure excellent joins, avoid sanding and extra labour (ie time) in general). Getting repeat orders from retailers is as much about doing the job on time as giving the quality promised. Doing the job right the first time saves time and reputation. Meeting turnaround times is also as much about ensuring the right amount of cash flows in and out the door.

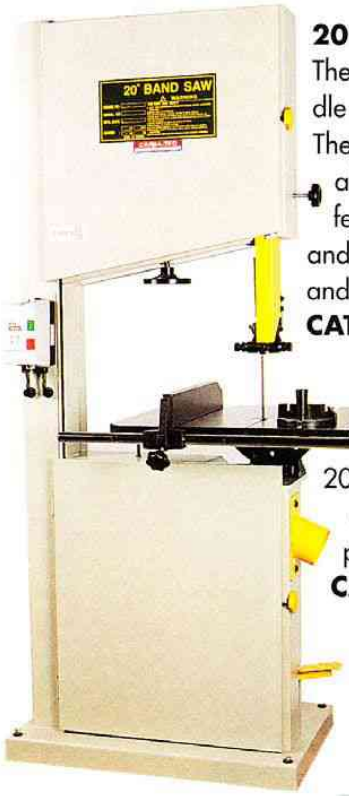
The issue of quality is also intrinsic to the partners' 'holistic' approach to business management. 'Quality is about giving service to retailers, giving them products they can deliver to clients where there won't be any comeback.' Specifically Les Brooker adds, 'quality is about consciousness and energy—it's an attitude'.

The windowless tin factory located in the outer industrial area of Fremantle looks like any other and shows no sign of the endeavour within, of the committment to sustainable levels of production and profit, and the meritorious cause of value-adding to Australian native hardwoods. The use of both feature grade jarrah and marri coupled with BVR's ground-breaking development and use of the latter species as a furniture timber have ensured that their success is not just due to tight financial control, but to an awareness and respect for the material they have chosen to work with.

BVR Furniture can be contacted on (08) 9331 1027

QUALITY MACHINERY?

SORRY, BUT THAT'S ALL WE SELL!



20" BANDSAW

These heavy duty bandsaws can handle all the big cutting jobs with ease. They come with a 13" depth of cut and a large 20" throat. They also feature a 3 hp, single phase motor and come with a rip fence, foot brake and mitre gauge.

CAT.No.WBS-20 .....$2550
INCLUDES TAX

24" BANDSAW

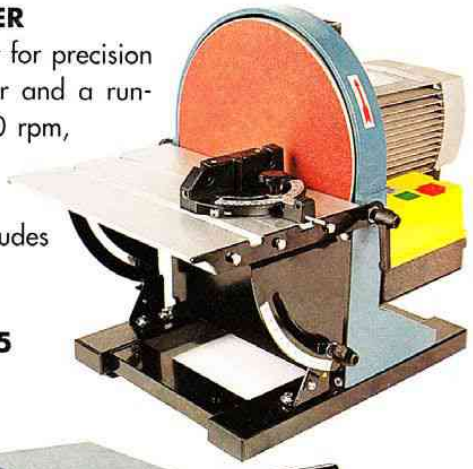
Has all the features of the 20"model, but with a 14" depth of cut, 24" throat and a 5 hp, 3 phase motor.

CAT. No. WBS-24.....$3125
INCLUDES TAX

12" DISC SANDER

High quality sander for precision work. 1½ hp motor and a running speed of 2850 rpm, this bench top sander's table tilts to 45°, and also includes a mitre gauge .

CAT. No. DS-3051.....$475



4" BELT SANDER

This ruggedly constructed sander is great for shaping and finishing. A powerful 1 hp, single phase, induction motor drives the 4" wide belt at 3800 fpm, and comes with a protective shield and dust extraction outlet.

CAT. No. GS-4481CE.....$525

3 SPEED TILTING HEAD SPINDLE MOULDER

This industrial quality machine features a ground, cast iron table with mitre slot, mitre gauge, adjustable fence and a 30mm spindle. The head can tilt to 45°, optional ½" collet available for router bits.

CAT. SK-28SP $1995
INCLUDES TAX

10" COMPOUND MITRE SAW

This compound mitre saw has all the features of Delta's Sidekick Series that you've come to expect. A powerful 2 hp motor, 10", carbide tipped blade, retractable guard, dust extraction bag, and work clamp. Light weight but sturdily constructed, this saw is a great portable workmate, and will make bevel and mitre cuts. Mitre stops at 15°, 22.5°, 31.62°, 45° and 90°, and bevels at 45° and 90°. This is the best price you'll ever see for this saw.

CAT. No. DE-36-210.....NORMALLY $449....SALE PRICE....$399

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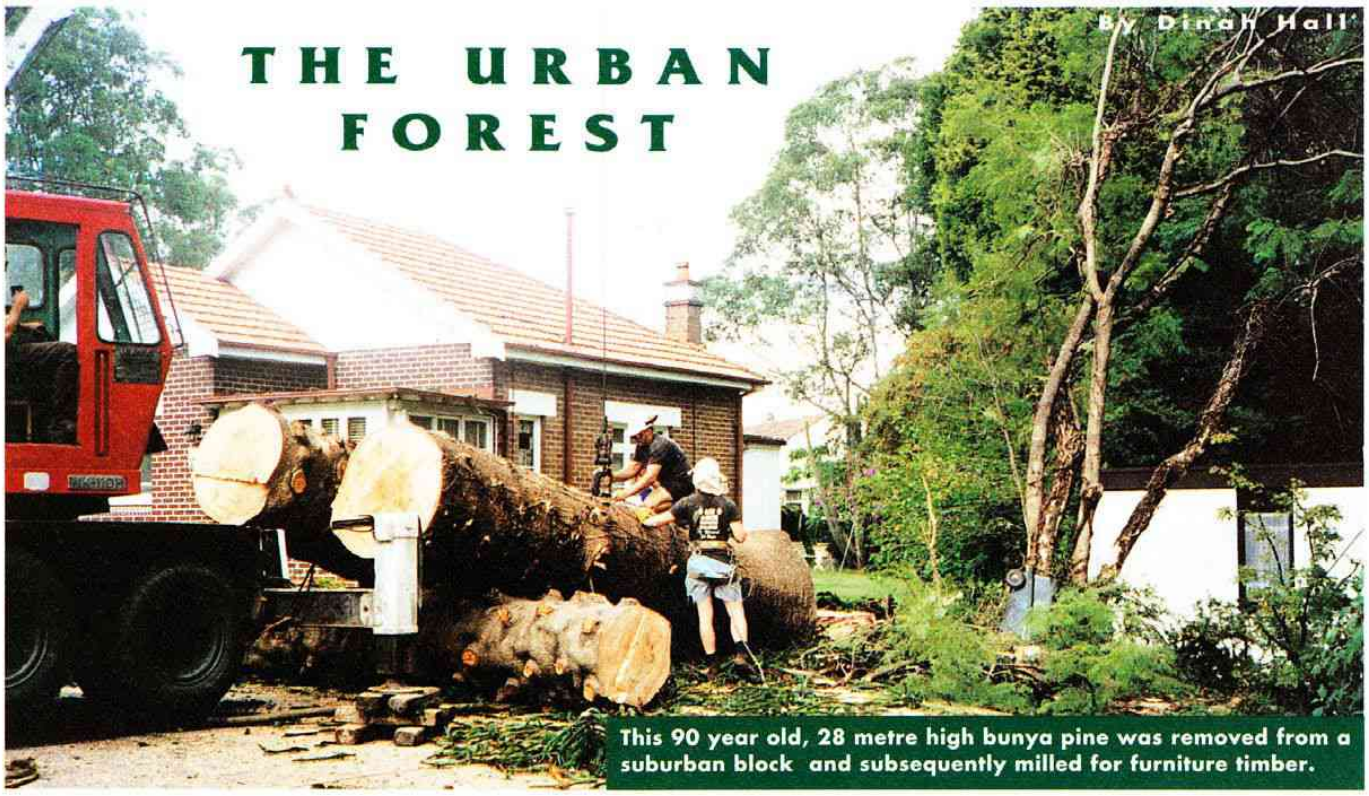
CARBA-TEC
TOOLS FOR WOOD

THE URBAN FOREST

By Dinah Hall



This 90 year old, 28 metre high bunya pine was removed from a suburban block and subsequently milled for furniture timber.

Across Australia fires are burning—not raging bushfires, but rather deliberately lit bonfires of felled paddock, park and garden trees. At last though, more and more people and councils are starting to realise that their 'pest' trees are in some cases a valuable resource. Urban foresters are being called in to recover what they can.

In any park or garden you'll find some of the best individual examples of mature indigenous and exotic species. These may be the source of spectacular timbers, highly figured and coloured, some rarely found in larger commercial timber outlets. Some, several decades old and far from their natural environment are vulnerable to root rot, storm damage, urban development and road widening. Others pose potential litigation problems when they have the misfortune of maturing in what has become a public space.

When a century-old Moreton Bay fig with rot at its base threatened to topple on tourists at Sydney's Vaucluse House it was felled and when milled on a portable bandsaw it yielded five cubic metres of workable timber. 'We haven't milled all of it yet, there are still large branches to be milled', says urban forester Peter Mussett of The Woodage.

One hundred years ago a Chinese elm was brought from England's Kew Gardens and planted as a gift in Sydney's Killara Park. It too came under the watchful eye of the local council who said it just had to go. Once milled it produced three cubic metres of fine timber.

The Woodage has milled the many species which pop up in suburban gardens within a stone's throw of Mittagong, including the sequoia (American red cedar) which grew in the grounds of the prestigious Milton Park, once the private home of the pioneering Horden family. The species sometimes encountered are as diverse as jacarandas, liquid ambers, Himalayan cedar, Chinese elm, English oak and elm and the many eucalypts.

'Over the past six years we have sourced timbers from suburban timber fellers, local municipalities and VicRoads which would have simply been dumped in landfill, burnt where it was felled or used as firewood. More importantly, we have rescued this otherwise wasted

Once destined to be firewood this bole of camphor laurel was recovered and milled into richly figured slabs. Photos here and above from Canalpie Custom Crafted Furniture.

timber turning it into a unique value-added resource which will be used and valued for generations,' explains John Short who with Jim Kelly work under the name of Australian Rescued Timbers (ART).

ART played a proactive role in 'rescuing' the trees, especially elm, of Melbourne's fated Albert Park which was converted from a green space to a controversial motor raceway. Many subsequently jumped at the opportunity to own a piece of heritage furniture marketed as 'Albert Park Rescued Timber'.

The Hazards

Trees tend to chronicle the activities of the people who live around them. They act as signposts, billboards and often support a variety of other structures. The things that turn up in urban and farm trees are legendary. Finding them before they hit the sawblade can save machinery and money. Researching local knowledge of the tree's history may also save sawblades.

'Street trees are the worst as many have seen a lot of elections and who-to-vote for signs. Even though a metal detector may pick up seven nails, the miller will find the next five. It only takes one... We now know to let go of the first six feet to miss the nails,'commented Peter Mussett.

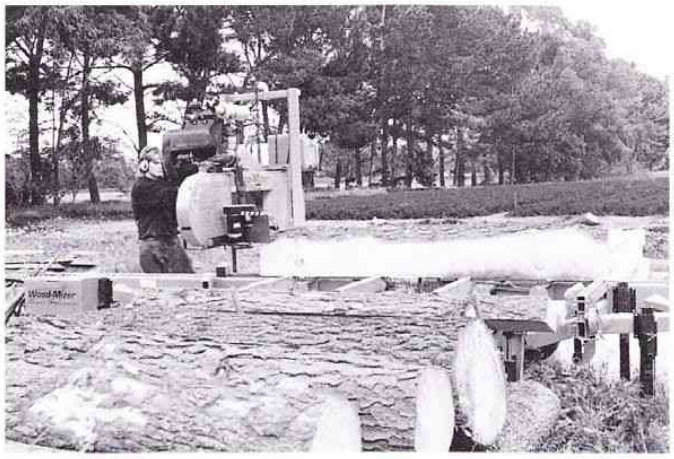
Brian Barret of Millwood doesn't bother with metal detectors mistrusting their accuracy. The day his mill destroyed four blades on an old clothes line pulley that had been entirely embedded 150mm deep in wood, he may have considered one though. He says the old custom of placing the horse shoe in the fork of the tree has also regularly been remembered with its own form of 'good luck'.

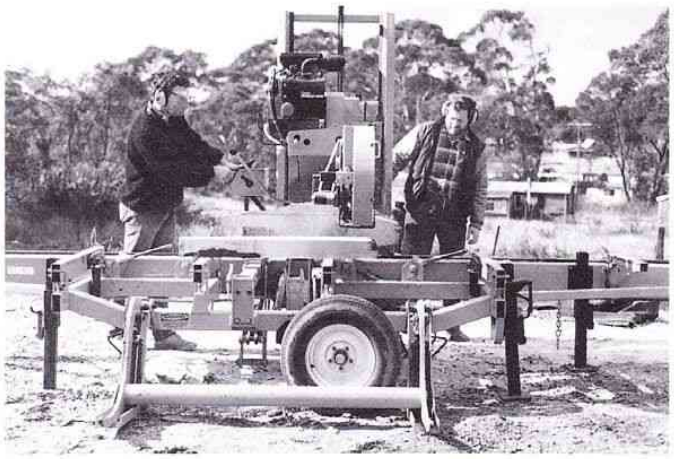
David Poole of Rare Woods cites 'Old clothes lines, six-inch nails that held a tree house in place, and even concrete that was used to support a dying tree that has been grown over and buried in the trunk...' as 'historic evidence of the trees existence in an urban environment.'

Max and Ken Otto, who have been milling urban trees, (especially mature exotic specimen trees) as a sideline business for the past two years, encountered trouble with a one hundred year old horse chestnut recovered from the 'Devil Elbow' freeway roadworks project in the Adelaide Hills. 'With each slab cut from the butt log we hit between six and twelve nails. As if this wasn't bad enough there was a 19mm steel rod embedded in the centre of the log—most probably used as a stake to hold the tree straight as a sapling and never removed.'

Apart from the in-grown nails, bolts and fencing wire often found, dirt is sometimes trapped in the tree as it grows, posing another threat to sharp sawblades.

Despite the obvious risks to equipment Otto and Co believe it is worthwhile putting in the extra effort to recover special timbers. And it appears that there is a bright side to the mysterious foreign found objects. Rare Woods sold one happy customer slabs of oteniqua (*Afrocarpus falcutus*) with a brass tap embedded in them—a feature later incorporated into the finished design.





Two examples of rural tree recovery and on-site 'mobile' milling. Uppermost, a pine windbreak for a market garden in WA recovered by Millwood Forest Products. Above, even shorter sections can return usable sections as shown by The Woodage, NSW.

Profit and Loss

At the other end of the equation of fine timber is the cost of felling, removal and machining. The feasibility of milling on-site, let alone removing larger sections of timber, may be low or simply not warranted in terms of the timber likely to be recovered.

In many cases farmers, householders and even local councils may overestimate the worth of the timber to be removed, failing to appreciate the costs of labour, time, machinery, transport, storage and marketing involved.

'We're reluctant to recover a tree we haven't first inspected ,' says Mussett citing the case of the red cedar at Hornsby with a 13 foot diameter which upon inspection turned into a 13 foot high liquid amber. On another bad day, what presented as a commercially viable camphor laurel milled up into cubic metre after cubic metre of plain white wood.

There is a certain amount of altruism involved in the recovery of timber from backyards, parks and roadside widening projects, where the waste of a fine resource is sometimes more of a motivation than the profitability of the whole costly and occasionally dangerous exercise. In fact for many urban millers this kind of activity forms a sideline to other facets of the timber trade.

Milling The Timber

Salvaged timbers and the reclamation of 'public' trees has been made economically viable by the use of portable mills (see AWR#14). The mechanised portable mill has been around since the 1950s, however today's mills are capable of producing everything from a slab through to fine veneer. Chainsaw mills are an option for this process, however the greater wastage produced should be considered.

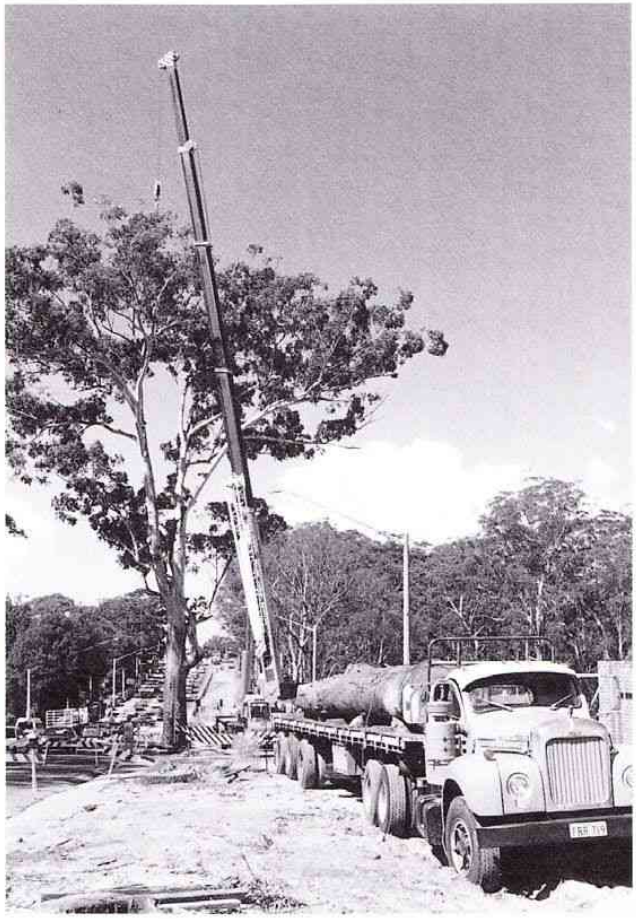
Millwood employ a portable bandsaw mill, a bobcat and a truck to complete their operations which take place in largely in rural settings. From old windbreaks of radiata through to the black walnut milled at a 90 year old settlement house, they have milled everything including cork, oak, grevillea, cypress, cedar, cape lilac and jacaranda. Pecan nut trees leftover from plantations are also milled up due to the popularity of the timber for handles.

'Timbers such as oak, elm, plane, Indian cedar, Monterey cypress and Monterey pine have established use within the commercial furniture and craft areas. However, without an assured constancy of supply, sales are dependent upon the hobby woodworker and the small manufacturer,' according to David Poole. The inconsistency of supply is also the biggest drawback for Peter Mussett. For this reason he is increasingly focusing on stocking plantation timbers from certifiably sustainable yield crops.

While householders can utilise their own timber, others can choose from unique and exotic timbers not always available commercially. One company alone which specialises in urban tree recovery is producing 400 cubic metre per annum—at the very least that amounts to a direct reduction in landfill.

The End Product

Recovered timbers become most commonly part of the immediate domestic scene, a kitchen benchtop for instance. Other timbers are crafted into custom-built furniture. A single English oak planted in the gardens of a Victoria Park (WA) home of 1897 yielded enough timber for Millwood Forest Products to produce a dining room and bedroom suite. As with all their milling operations Millwood photographed the said tree before it was felled, the timber after it was milled and the furniture when it was finished to tell the complete story of the tree. They also keep a small sample from every tree they mill. Canalpie Custom Crafted Furniture document their operation in a similar fashion, highlighting their so-called 'vertical integration' of timber recovered from urban sites.



The removal by crane of blackbutt and ironbark trees during the widening of Pennant Hills Rd in NSW. The timber was sawn for flooring and furniture (photo Canalpie Furniture).

Max Otto points out that because the trees are not grown in a forest situation they are generally fairly knotty with 'beautiful swirling grains and knots that are generally pleasing to the eye, and highly individual. Urban timber slabs offer the architect, builder, interior designer and timber lover a whole new dimension in timber design and aesthetic possibilities.' This company is promoting its urban timber for construction as columns, exposed beams and rafters.

The Future

While urban forestry is arguably in its infancy, its future is, as with all commodities, based on supply and demand. The increasing acceptance and demand for figured timbers in the marketplace ensure demand, making supply the biggest problem. While some municipal councils are approaching urban millers for recovery of timbers from their 'waste' many are still bulldozing felled trees for landfill or bonfires. The future of this resource depends on a consistency in planting of trees in both public and private areas, and the continued and wider appreciation of the resource itself.

One person who sees a definite future for urban forestry is David Poole who argues: 'There must be a future for urban trees which go on being planted every weekend in private gardens. Perhaps secondary schools should be encouraged to use only recovered timbers; or architects or interior designers trained in their advantages. Whatever the answer, urban forestry is yet to have its day.'

The significance of this resource in terms of volumes recovered is difficult to assess. The likelihood of larger scale commerical application is doubtful, yet clearly this is a source of unique and precious timber which should not be wasted.

The following suppliers engage in urban tree recovery; species and volumes stocked vary:

Rare Woods (03) 9427 0570

Millwood Forest Products (08) 9725 6226

The Woodage (02) 4872 1618

Otto and Co (08) 8362 3522

Canalpie Custom Crafted Furniture (02) 4571 1570

By Philip Ashley

MULTI-FUNCTION SPACESAVERS: COMBINATION MACHINES

Tecnica C310E

Made in Italy
Cast iron, aluminium and alloy
Sawblade dia 250mm
Crosscut capacity 1200mm (2400mm opt.)
Scoring optional
Sliding table standard
Planer width 310mm
3 planer knives
Thicknesser height 170mm
Spindle moulder standard
Mortiser standard
3 motors, 1.8kw
300 kg
Price inc. tax $9,319

A combination machine, by definition, is any piece of equipment that combines the functions of two or more different machines. A planer/thicknesser is technically a combination, but usually you would expect several functions—typically, a sliding table saw, planer/thicknesser and spindle moulder, with possibly a drill and mortising attachment. With this configuration, you will be able to perform almost every process you need.

Pros and Cons

A combination machine gives the small scale woodworker the power to tackle bigger, more complex jobs. A good combination can provide the mid-sized producer with flexibility, doubling as a spare machine when delivery times are tight. Many antique restoration shops, notoriously tight on space, have a combination to reproduce parts of old furniture. Serious hobbyists use them, and joiners who need a second saw appreciate the other functions of this versatile machine.

Space constraints, especially in Europe, have led to a proliferation of machines of all prices and configurations. The modern combination machine is usually a very fine piece of equipment, and although sometimes of light duty construction, generally offers a competitive edge.

Although single function machines may be more efficient, the savings in floor space and purchase cost returned by a combination warrants investigation. In fact, the space you need to operate a combination is greater than you may think, because it must be operated from several positions. Depending on the use, you will need access to the machine from all sides, which means it needs to be centrally located in the workshop. Some machines have optional wheels so you can move them around, although wheeling a machine around on a messy floor can be a little difficult.

Price can be a big attraction with a combination. Line up separately a saw, planer and spindle moulder and compare the cost of a combination with the same configuration—you may be thousands of dollars ahead. And don't forget, resale on quality machines is always easy, especially on single phase models.

What You Need

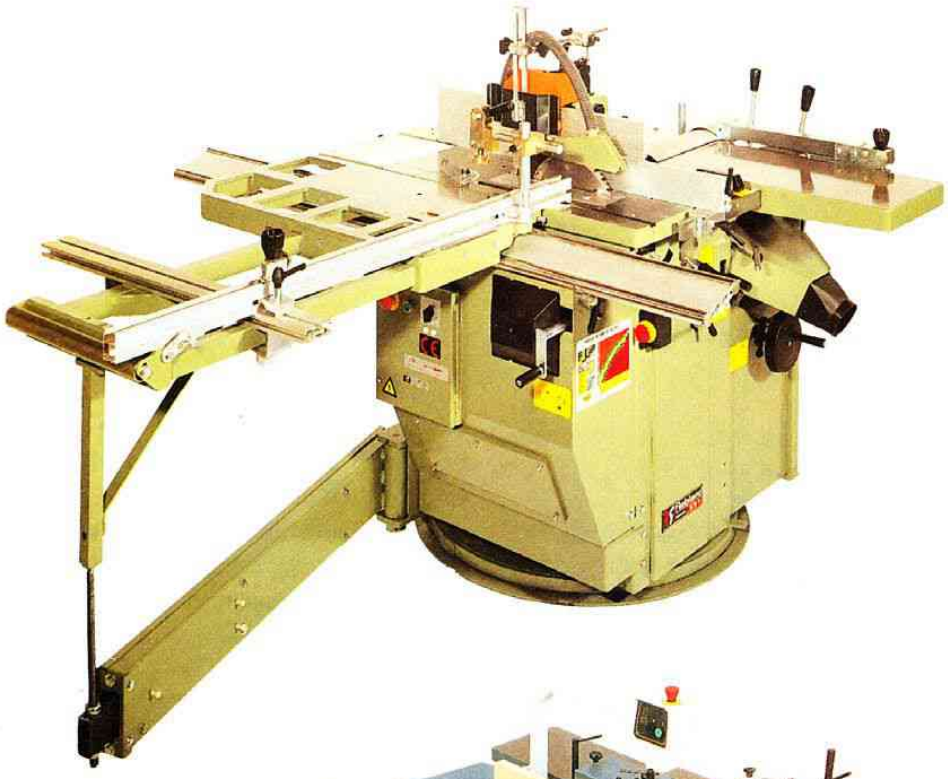
Work is much easier when you get a machine with the right equipment and features. Look for a tilting arbor saw with the largest blade capacity available (300mm is better), a spindle moulder shaft that takes industrial bore tools, a good-sized planer (250-300mm), and multiple motors if possible. Typical complaints about these machines are that the tables are too small, the construction of the machine is poor, and the motors are not powerful enough. These are obvious things to investigate thoroughly.

Felder Compact BF6-31

Made in Austria
Cast iron, steel and alloy
Sawblade dia 250-315mm
Ripping capacity 800mm
Crosscut capacity 850/1240mm
Scorer optional
Planer width 310mm
2/4 planer knives
Thicknesser ht 220mm
Spindle moulder standard
3 motors, 2/3kw
Options: Mortiser, tilting spindle moulder
620kg
Price inc. tax from $13,500

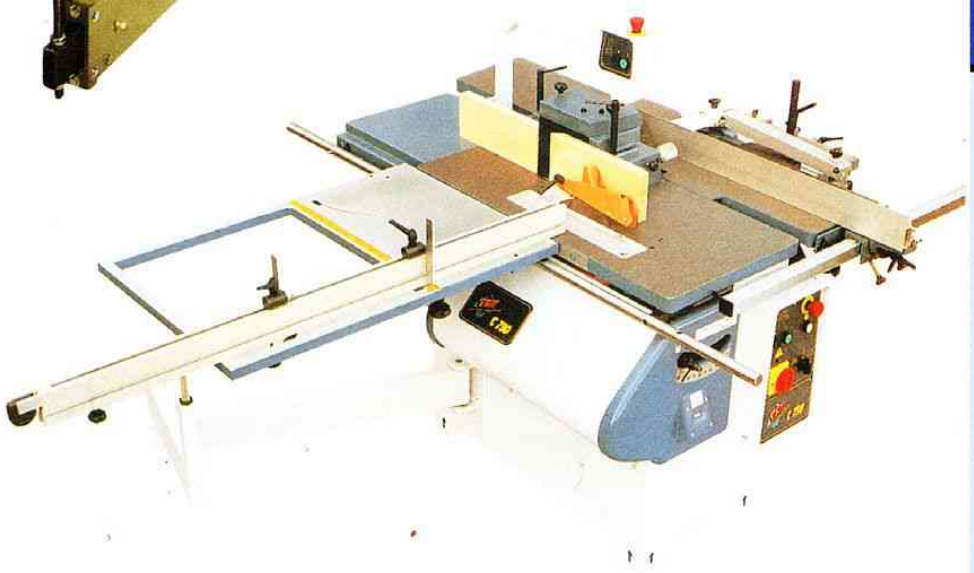
Felder BF7-41

Made in Austria
Cast iron, steel, alloy
Sawblade dia 250-315mm
Ripping capacity 900mm
Crosscut capacity 1240-3200mm
Scorer optional
Planer width 410mm
4 planer knives
Thicknesser ht 220mm
Tilting spindle-moulder standard
3 motors, 2-7 kw
Mortiser optional
800kg
Price inc. tax from $23,500



Robland LX310

Made in Belgium
Cast iron, steel, alloy
Sawblade dia 250mm
Ripping 630mm
Crosscut capacity 1290mm
Sliding table standard
Planer width 310mm
3 planer knives
Thicknesser height 230mm
Spindle moulder standard
Mortiser standard
3 motors, 2.25kw
400kg
Price inc. tax $8,479



Lavorazioni Combinata 7 C730

Made in Italy
Cast iron tables, steel
Sawblade dia 300mm
Ripping capacity 800mm
Crosscut capacity1280mm
Scorer standard
Sliding table standard
Planer width 300mm
3 planer knives
Thicknesser height 230mm
Spindle moulder standard
Mortiser standard
3 motors, 1.875/3kw
525kg
Price inc. tax $9,596

Hegner Precision Table Workshop MK4

Made in Germany
Cast iron base, machined aluminium alloy table
Sawblade dia 150mm
Crosscut capacity 500mm
Scoring: no
Sliding table optional
Router standard
2 motors
Motor kw 0.35kw (saw); 0.45kw (router)
Options: mortiser, sander and extension tables
28kg
Price inc.tax $2,800

A small table will make it difficult to handle large sheets of particleboard or plywood. Poor quality will not last, and will show up in the work you produce. Small motors will struggle when cutting certain timbers. Some smaller mini-combi's have motors as small as 0.6hp (0.35kw) for cutting timber up to 35mm thick, but most are in the desirable 2-3hp range.

The adjustments are very important. A lever action is quicker for the saw height adjustment. For setting the surfacer, shaper spindle height and saw tilt, you will find the accuracy of a handwheel much better. Ease of operation is important. Changing from one function to another should be simple; everything should just fall into place. Locknuts and handwheels should be easy to operate, and guards (metal are preferable) should be supplied as per your state regulations. Magnifying glass sights on the rules are a bonus, and some machines still have both imperial and metric scales.

The Planer

Most people who purchase a machine with a small planer have lived to regret it. 250mm is good, but you will be surprised how often you will find a use for 300mm or more. The longer the surfacer tables, the better chance you have of getting the wood straight. The more knives in the cutterhead the better (3 is a good number), and the more bolts holding each knife, the straighter your cutters will be.

Even with these features, your work will suffer if an efficient cutter setting device is not included with the machine. It's worth considering the purchase of a specialist setting device to get the cutters right, because both the surfacing and thicknessing are done with the same set of cutters. Noise-reduction 'fingers' are sometimes machined into the ends of both the tables nearest the cutterhead, and are a feature to look out for.

The Circular Saw

Good quality slides, especially for the sliding table, make for trouble free performance. Combination machine saw slides have undergone vast improvements in recent years. With the widespread acceptance of board products as a building and furniture material, the sliding table must no longer be the compromise it once was.

The action of the sliding table should be smooth and free running. Check for any sideways movement of the table as it is moved to and fro. Some machines come with a light aluminium box-type table running on one round bar—if this is the limit of your budget, then so be it. A machine sporting a solid steel table running on a significant slideway will cost you more, but will save in the long run.

Scoring adjustments are difficult to get right and an Allen key system is good. Avoid having to remove the table plate in order to turn a bolt—being able to adjust while the machine is running will save you time.

The Spindle And Thicknesser

More saw and shaper speeds will allow you to run at the optimum cutting speed of the tool. You should try to achieve this wherever possible, for quality and safety reasons. You should be able to adjust both fences on the spindle moulder. Some makers only allow adjustment of the lead-in fence, and this can be restrictive and time consuming. On a combination, the sliding saw table is also used as a feeding

TruPro Workstation TP-96

Made in China
Cast iron, steel
Sawblade dia 235mm
Ripping capacity 370mm
Crosscut capacity 225mm
Scoring: no
Sliding table optional, 550mm crosscut
Planer width 150mm
3 planer knives
Sanding disc 230mm dia
1 motor, 0.75kw
Options: Extension tables, jigsaw and router kits
Price inc. tax $1,199

device for the spindle moulder, so you will need a hold-down device or clamp for when you do your tenoning operations.

Thicknessing is the least difficult operation to perform on a combination, but is still very important to the finished product. Your machine should be of solid construction, so look for a significant central column under the thicknessing table. A digital readout is good here because the scale rule on most combinations are difficult to read properly, unless you get down on your hands and knees. Thicknesser depth scales often read more than they can actually achieve. Check this, as some read 250mm but only go to 230mm.

Planning Your Work

Combination woodworking machines enable us to perform a number of operations, but these must be carried out in a certain order to make effective use of our time. Surface planing, thicknessing, morticing, tenoning and shaping must be carried out in that order. Only the saw can be used throughout this sequence. It stands to reason that if a step is forgotten, your time is wasted resetting the machine for that one piece, and then setting it back again. Planning your work is very important when you use a combination.

Operating Tips

Keep your tools sharp. Blunt tools use more power, are dangerous, and perform unsatisfactory work, which you will pay for later. Your sawblade should be adjusted to protrude from the work about 20mm. This will give you the best cut. Use a scrap backing piece when crosscutting solid wood, and always use push blocks and safety devices. Try to plane with the grain, and if the wood appears to be torn out after planing, reverse the board and try again. Don't try and plane too much off at once, it's more dangerous and the work will be harder. Two millimetres a time is enough. Personal protective devices and clothing should always be used.

Your Choice

Changing over the functions of the machine are a hassle, but usually tolerated to save space. Where space is not a consideration and you have a combination, the changeovers are definitely a nuisance. Although the modern machine is very quick to convert, the time soon adds up. Most machine distributors will tell you that this time can be measured in seconds, but you still have to adjust the parts after you have swung the table into place, or repositioned the fence.

Another consideration is the complexity of the machine over stand-alone equipment. A purpose built surface planer needs very little adjustment from one use to the next, but a combination machine may need several adjustments which can lead to problems. This can be as minor as forgetting to move the dust extraction chute, or in the worst case, not installing the proper guard or tightening all the locks. For safe operation, you will need to be on the ball at all times.

Many people have purchased a combination machine for a hobby which has eventually turned into a business, but the combination machine is still there, and more often than not is still being used. There are reports of combination machines being used by the one person for almost thirty years, a lifetime in anyone's language.

There is a machine to suit almost every budget and use. Smaller combi's, such as the Hegner MK4 are beautifully made machines that suit model and toy makers. Larger equipment is used with great success by furniture makers, hobbyists, and builders. As with everything in life, you get what you pay for, so look around, and take everything into consideration before you make your final choice, because it is possible that you will have the machine for many years to come.

Valmec Prof 2500

Made in Italy
Cast iron, steel, alloy
Sawblade dia 250mm
Crosscut cap. 300mm
Sliding table standard, large sliding table optional
Planer width 250mm
3 planer knives
Thicknesser ht 120mm
Spindle moulder standard
Mortiser standard
Motor 1.5kw
200kg
$5,400

Suppliers of combination machines:

Felder Machinery (03) 9801 7728

Hegner from MIK International (08) 8333 2977, Power Tool Specialists (02) 6280 4966, The Woodworks Book & Tool Co (02) 9807 7244

Lavorazioni from Leda Machinery, (08) 8234 1577, A-Class Machinery (02) 4577 3685, Timbertop 1800 246 221

Robland from Advantech 1800 355 635, Hare & Forbes (02) 9633 4099, (07) 3849 1888

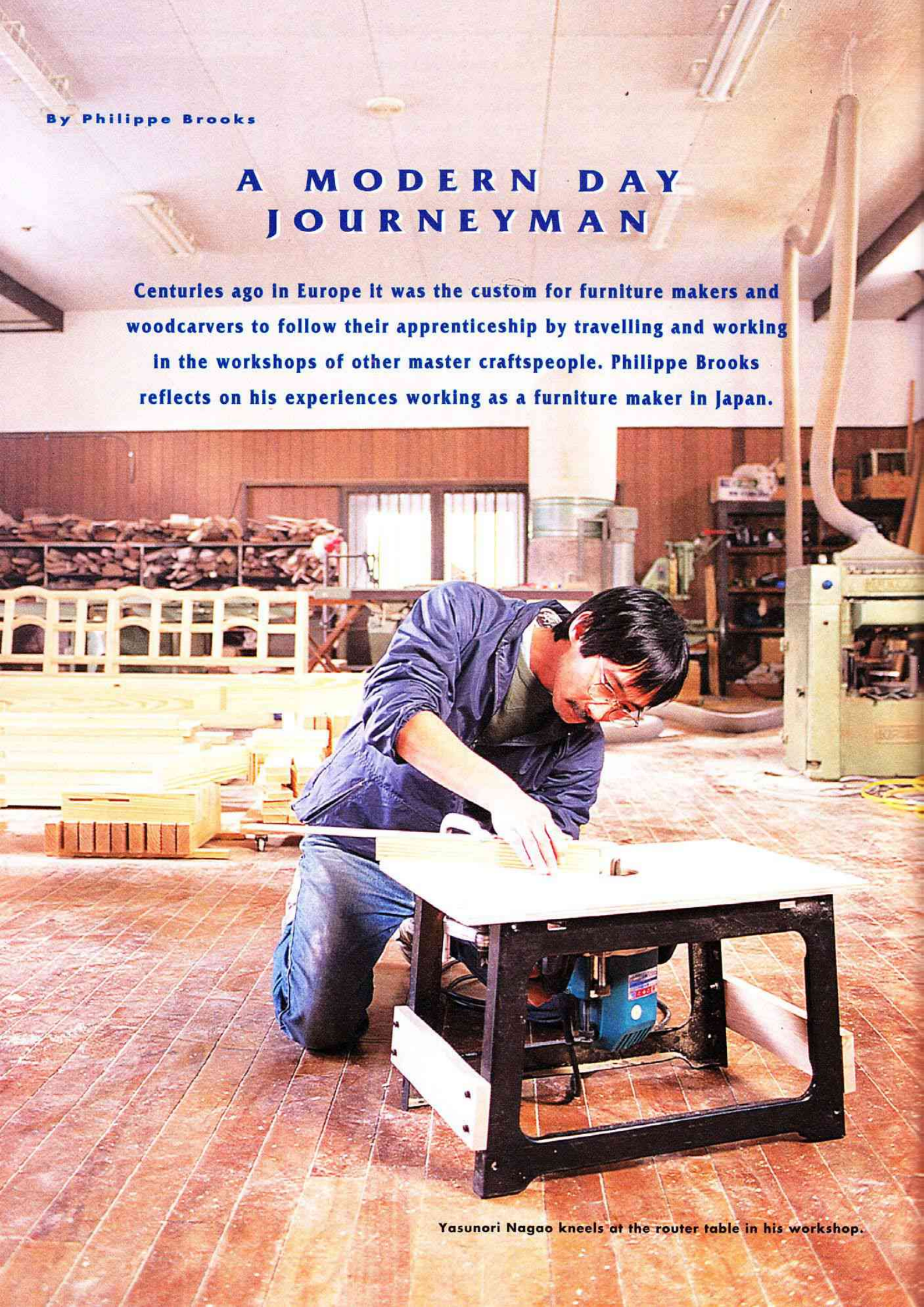
Tecnica from Woodman Group (03) 9555 5199, (02) 9708 3233, (07) 3844 4433, SA (08) 8346 4561, WA (08) 9272 3844 and A-Class Machinery (02) 4577 3685

TruPro and *Valmec* from Woodman Group

By Philippe Brooks

A MODERN DAY JOURNEYMAN

Centuries ago in Europe it was the custom for furniture makers and woodcarvers to follow their apprenticeship by travelling and working in the workshops of other master craftspeople. Philippe Brooks reflects on his experiences working as a furniture maker in Japan.



Yasunori Nagao kneels at the router table in his workshop.

Early on in my career as a furniture maker I was fortunate enough to work in Japan as a shoji maker and assistant to a furniture craftsman. The woodworking scene in Japan is quite different to the situation here in Australia. There are many pockets of woodworkers in Japan which co-exist quite separately. There are highly skilled carpenters, and those involved in traditional activities such as shoji making, 'butsudan' or home temple making and 'urushi' or Japanese lacquer work.

The vast bulk of consumer furniture in Japan is shiny mass produced stuff, pretty horrible. One of the reasons for this is perhaps that despite Japan's rich woodworking heritage there are very few traditional forms of Japanese furniture—no chairs, no beds, basically just a small low table for dining and sometimes a chest of drawers, usually not much more. The Japanese have used built-in robes for storing futons and other items for several hundred years. Really it has only been with Japan's westernisation that furniture has started to play a more significant role in terms of domestic and office decor.

One of the first things I noticed when I started work is that all standard (western) furniture sizes have to be altered in Japan. Tables and chairs, for example, are not only reduced in height but often in overall dimensions as houses are much smaller. Even in new houses internal doorways are usually a standard 1800mm high. Being slightly taller that this I quickly learnt to duck whilst walking between rooms!

So where does the designer/maker of furniture in Japan fit in? It is widely known that Japan is a very group-oriented society, one in which the role of the individual is important only if it is for the good of the many. In very recent times however, the younger generation has questioned this assumption and started to exert some pressure on the powers that be in order to expand individual rights. Some, admitedly very few, have even taken gone to the extent of opting out of mainstream society altogether, a number of these becoming woodworkers. Indeed the designer/maker movement in Japan appears to have developed in the same way it has in Australia, or a least in south west Western Australia.

'Arts and Crafts Village' in Asahi Cho, Okayama Ken, Japan.

Yasunori Nagao is now a leading designer/maker in Japan. Previously he and his wife both had white collar jobs, however some years ago they decided to pursue their respective interests, namely furniture making and weaving, on a higher level. This took them to England for a year during which time Yasu studied with a number of English furniture makers, most notably Alan Peters, with whom he still keeps regular contact.

After their return to Japan, Yasu set up as a full time maker working from a small barn. About five years ago, however, they became aware of a small village school closing down due to lack of students and after some negotiation were able to lease the school for a peppercorn rent and set up their 'Arts and Crafts Village' which is about three hours' drive from Osaka. They now have a well equipped and spacious workshop, rooms for weaving, a coffee shop and bed and breakfast rooms.

The gallery scene in Japan is also quite different to the Australian situation insomuch as most high level galleries are part of large department stores. Being taken on by a gallery is certainly a mark of success. Yasu has achieved this and his designs, once very much based on the Arts and Crafts movement, have become much more indigenous and in tune with the Japanese aesthetic.

For my part, working in Japan was an eye opener in many ways. To pursue the craft/design history of a culture many centuries old is an invaluable experience, as is working alongside craftspeople whose tools and techniques are quite different from one's own.

On a day to day level in the workshop things are again unlike Australia. There are very few small woodworking businesses in Japan and there are virtually no hobbyists due to a general lack of time and space for this pursuit. Sourcing equipment and supplies for a small workshop can therefore be a problem. During a visit to Perth some years ago Yasu shipped an Australian lathe back home as there were simply no comparable machines available in Japan.

One might also think that the range of power tools would be huge there. This is not so as many power tool manufacturers only make for the professional in Japan, the result being a limited range of higher priced tools. And so it goes on down the line, router bits, glues, lacquers and so on are all very hard to obtain.

In Yasu's workshop the range of work tackled was predominantly domestic furniture made from timbers such as

oak, beech, maple and some softwoods. In the latter category I did a fair amount of work in Siberian pine, a slow growth, blemish-free timber which was an absolute joy to work.

Softwoods were always finished straight off the plane. The Japanese planes are tuned to take very thin, full width shavings that burnish the timber, giving an exceptionally smooth finish and a beautiful sheen. The wooden bodied hand planes or 'kana' in Japan are used virtually as we in Australia use abrasives. Indeed during my stay I seldom used abrasives except when coming across a piece of hardwood with cantankerous grain.

Because the planes are used every day it is easier to keep them in a constantly high state of tune. After a while I was able to take a pine shaving that, when folded to five layers, was still thin enough to read newsprint through. Yasu took shavings so thin that they seemed to take forever to waft down to the workshop floor.

Just prior to my departure Yasu was constructing a room for 'urushi'. The red and black Japanese lacquer or urushi tableware is probably the most recognisable for Westerners. Opaque lacquers are sometimes used for furniture but clear finishes are more common. The raw material comes from the rhus tree and is notorious for producing severe allergic reactions. Yasu was not affected but his wife and daughter developed bad skin rashes even though they never even entered the finishing room.

A traditionally styled desk of cherry. The user would sit on a small flat pillow.

Urushi is a beautiful low-bodied satin finish that is amazingly tough. It is very time consuming to apply, and requires special conditions to cure, namely heat and humidity. To this end the finishing room was set up with several kerosene heaters and rows of old hand towels that were strung on a line and kept damp. I didn't do any urushi work during my time with Yasu, but I have no regrets on that score, having witnessed the allergic responses.

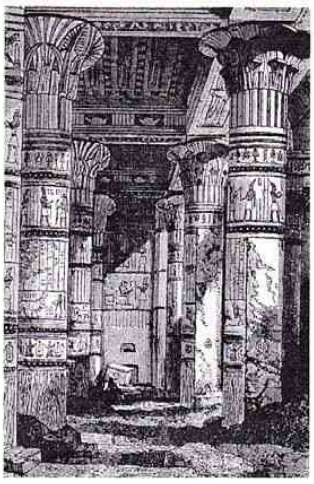
Overall, working in Japan was an extremely valuable experience for me and I equate it to that of the journeymen of old, who after finishing an apprenticeship would work in a number of other craftsmen's shops in order to gain extra experience in fields possibly not covered by their previous boss.

I cannot recommend the experience of spending time in the workshops of others highly enough to all craftspeople, particularly those in their formative years. □

Yasu and another 'exchange' assistant from England (ex-Alan Peters's London workshop) at work on a bench/settee.

By Mike Darlow

ON CLASSICAL COLUMNS



Stone columns in the Temple of Isis at Philae in upper Nubia, built between 283 and 47BC.

Not roadside power poles but Classical column shafts in disguise.

The column, with the beam, was man's earliest structural element. It was a prime architectural focus for the Bronze and Iron Age civilizations around the eastern end of the Mediterranean Sea. Many believe that column design reached its apogee not long after the death of Christ. Yet even today the turned wooden column offers design scope and practical challenges.

History of Columns

Egypt

No traces have survived of the wooden tree-trunk posts and columns used in the domestic buildings and palaces of ancient Egypt. All extant ancient Egyptian columns are stone, but still have vegetable connotations, with design elements being based on such as bundles of reeds, lotus buds, papyrus flowers, palm trees, and palm leaves.

The Ancient Near East

Where suitable timber and stone were rare, as in the alluvial plains of the Tigris and Euphrates, sun-dried bricks were used in engaged and isolated columns supporting arches, vaults and domes. In Persia where readily-worked limestone and timber were plentiful the architecture was columnar.

It is in the Near East where the earliest wooden column remains have been found. The palace of King Minos at Knossos on Crete (rebuilt about 1650 BC) was at least two stories high, and covered 1.6 hectares. Its columns were downward-tapering and had cypress shafts. Similarly-shaped half-columns almost 7 metres high in green limestone were used at the entrance to the Treasury of Atreus in Mycenae in southern Greece, built between 1350 and 1250 BC.

A column of tallowwood, turned as a vase stand.

The Greek Period

The Hellenic Age marked the first phase of classical column design. The main period of Greek temple building was 590-335 BC—the principal Greek Doric and Ionic orders (fig.1) were first used in temples. The Greek Doric evolved in mainland Greece, the Ionic in the Aegean islands and along the coast of Asia minor. The Corinthian order appeared later, in the fifth century BC as a decorative variant of the Ionic. (The term *order* is used because the design of the column was only a part of the codified design whole which included the entablature. The term was expanded during the Renaissance to also include an optional pedestal supporting the column).

The Greek Doric column is very different from the Roman in that it is without a base and has a different capital without an astragal. The Greek Doric like all the classical orders has a shaft with a slightly convex profile which looks better than and counteracts the apparent waisting which results from a straight taper. The shaft was invariably fluted with typically 20 flutes separated by sharp arrises, and looks marvellously gutsy

with a height of between 5 1/2 and 7 times its shaft's lower diameter, and a much stronger taper than the other orders.

The Greek Ionic column and its later Roman versions were similar, and more slender than their respective Dorics being between nine and ten times their lower shaft diameter in height. They typically have 24 flutes separated by flattened arrises called fillets.

The Roman Period

Mud brick, wood, and terracotta were the building materials used before Rome became an independent power. Direct exposure to Greek influences, both imported and from the already Hellenised Compagna south of Rome, the exploitation of local tufa and travertine, the importation of foreign marbles, and the development of cement and concrete were mated with the need for a growing variety of buildings as Rome grew and prospered.

The three Greek orders were used, but the proportions of the Roman Doric were more slender than its Greek predecessor. Two additional column orders (the Tuscan and the Composite) were introduced. Arches, vaults, and domes were extensively used, in part because of the shortage of wide-spanning stone lintels. The orders came to be stacked; for example the Colosseum, built 70-80 AD, had Doric columns supporting Ionic supporting Corinthian.

A display of classically-inspired columns and pedestals. Most shafts are tallowwood, *Eucalyptus microcorys*, the bases and capitals are in lacquered MDF. The shafts of the taller columns are split to make them more portable.

The Renaissance

Column design continued to change and develop after the fall of Rome, notably through the Romanesque and Gothic periods. The proportions and design of columns and their component parts, along with how they should be used, had been dealt with at length in the writings of Marcus Vitruvius Pollio during the reign of Augustus (Emperor 28BC-14 AD). Numerous engravings, woodcuts and pattern books based on the work of Vitruvius were subsequently produced.

This codifying of Greek and Roman design made it possible for even those outside Italy to successfully adopt the Classical orders, and Classical design became the style of choice for the wealthy and status conscious.

Designing Classical Columns

Most columns have three primary components: a base, a shaft, and a capital; with the first and last elements optional. You can utilise and mix-and-match column design details from Europe, Asia, Africa, and elsewhere; and you can originate your own. However there is a continuing demand for Classical and Classically-inspired columns; and the design of shafts with diminution

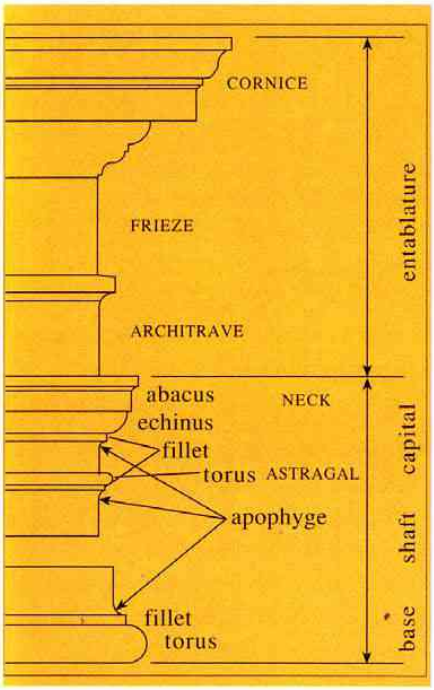
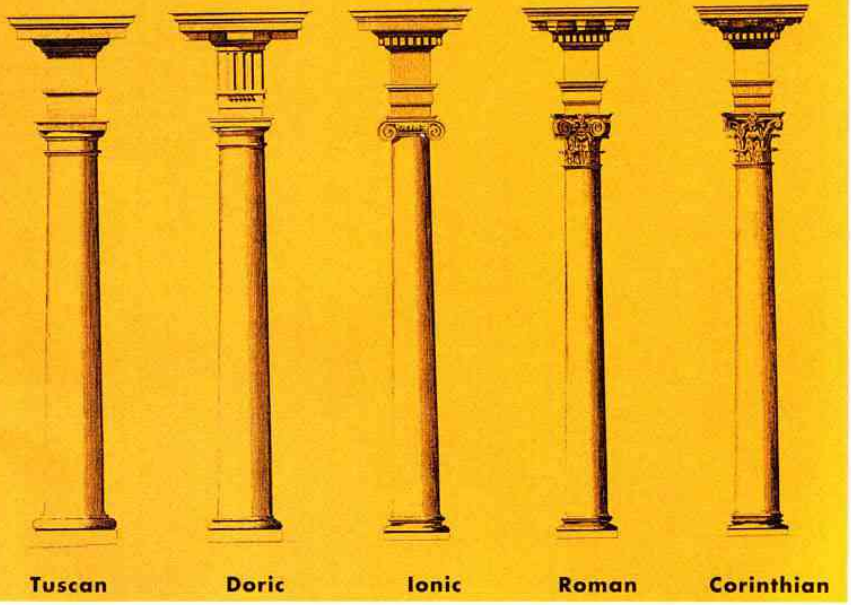


Fig.1 The Roman orders according to William Chambers. His "Roman" order is normally called Composite as it combines the Corinthian and the Ionic.



and neo-Classical columns in atypical situations have a wider relevance.

Steps in Column Design

There are seven steps in designing a column, although the order is not necessarily as linear as set out below:

1 Establish the column's total height and the details of its surroundings.

2 Decide on its order(s)—Doric, Tuscan, etc. You can invent your own type or consider eliminating the astragal and adjacent fillet where the shaft is stumpy and strongly tapered.

3 Decide on the maximum (lower) shaft diameter. For a typical Roman stone column such as you commonly see on public buildings, the ratio of the overall column height to the maximum shaft diameter is between seven and ten.

4 Decide the column taper; the ratio of the shaft diameter under the capital to the lower shaft diameter.

5 Design the base, capital, any astragal and fillet, and the diminution. You can use one of the many treatises on column design. There are three methods of entasis design: formal graphical, informal graphical, and by calculation. Decide whether the shaft will be fluted.

6 Design any joints; any laminating; the turning procedure; how to cut any flutes, reeds, or cabling; the installation procedure; and any fixings.

7 Design the finishings.

Height and Surroundings

To design a classical column is apparently simple—look it up in a pattern book. However the proportions apply to stone columns incorporated into Classically-styled buildings. You can make wooden columns more slender due to the material's greater resistance to buckling. Slenderness can also be increased where the wooden column is a pattern for a column to be cast in metal or concrete.

Columns usually support walls, beams, arches, or vaults, either visually or in fact, being built into a building, a piece of furniture, or an item of treen. All these factors have to be taken into account when you design a column. The Classical ratios cannot be applied unthinkingly because they assume that the columns are at least four metres high and viewed by someone standing at floor level. Also because of the dimensions of the available wood or other constraints, you may opt for greater slenderness. And when the height to diameter ratio becomes visually too large, you may prefer to put a pedestal below. In short there is a good deal of art in successful column design.

Isolated columns such the 35-metre-tall Trajan's Column in Rome and Nelson's in Trafalgar Square built 1700 years later are architectural rarities, but smaller versions are often used to support statuary or vases of flowers. Columnar stands therefore need squatter proportions and enlarged capitals and bases, see page 40. Other solutions are to design the stand as the lower remnant of a large column, or a slender column with greatly-enlarged base and capital.

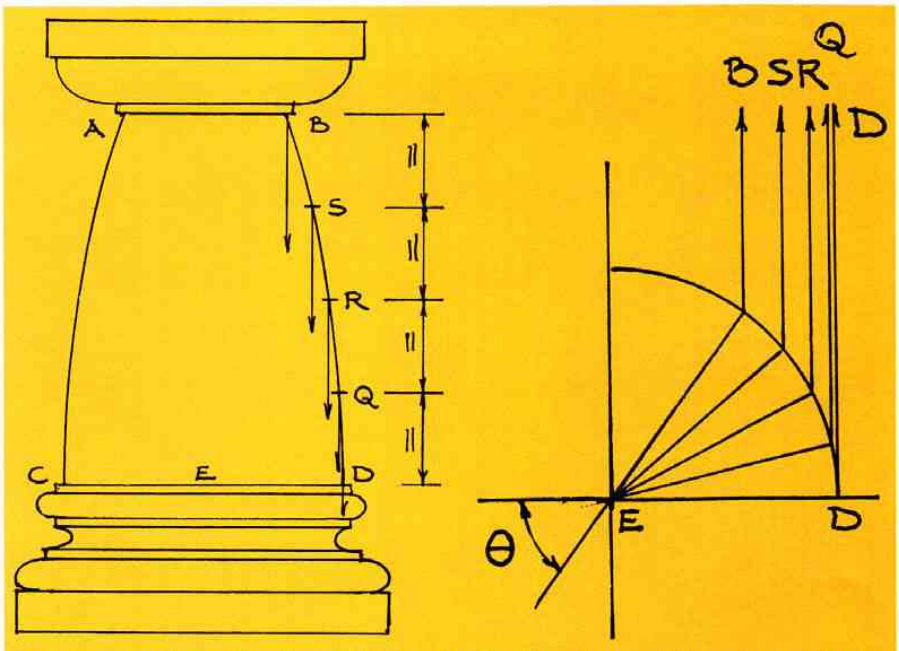


Fig.2 A coffee-table leg with the diminution drawn using the method shown in Charles Normand's *A Parallel of the Orders of Architecture* published in Paris in 1819.

Detailed Design

Base and Capital

If you want to avoid carving the capital, you are restricted to the Greek and Roman Dorics and the Tuscan. But although there are codified forms, extant examples show a wide range of proportions and detailing. You can also design your own.

All texts convey their recommended proportions using a *module*, usually the lower shaft diameter or half of that diameter. In older texts the module is usually divided into 30 *minutes* or *partes*, and the detailed dimensions expressed in these smaller units. Chitham in his *The Classical Orders of Architecture* (1985) rightly points out that such systems are inconvenient in an age of electronic calculation, and therefore expresses detailed dimensions as decimals of the lower column diameter.

Shaft

The profile of a classical column shaft does not have straight sides. Typically the tapering from base to capital is curved and accelerates towards the capital. The swelling and the curve of the shaft are both often termed *entasis*. Isaac Ware in his 1738 translation of Andrea Palladio's *The Four Books of Architecture* however uses the term *diminution*. Chitham differentiates entasis from diminution, reserving entasis for column shafts which not only diminish in diameter towards their tops, but also narrow towards their bases. Here, however, I only consider shafts which taper towards their capitals and will use diminution.

For classical columns the total shaft taper is typically 1/6 th of the lower diameter, but this decreases with increasing column height. The shaft diameter may also be varied where there are rows of columns, the shaft diameter decreasing with a decreasing intercolumnar distance.

Left: Laminated drums for a pattern for columns to be cast in imitation sandstone by Haddonstone Australia Pty Ltd. Right: A 7-metre-long central column for a pole house being turned to the client's design.

After deciding on the magnitude of the taper as a proportion of the lower shaft diameter, there are three methods for determining the detailed shaft profile: by drawing, graphically, and by calculation:

By drawing

With relatively short and strongly tapering shafts you can readily sketch and then refine the shaft and column dimensions. The drawing can be full size or scaled down. However this method becomes too inaccurate with slender columns, although compressing the vertical scale of the shaft helps.

Graphically

Figure 2 shows a graphical method for determining entasis. For typically proportioned building columns the bottom third or quarter of the shaft is often left of constant diameter, and the diminution is only applied to the larger, upper length of the shaft.

By calculation

The calculations below are based on the graphical method illustrated in fig.2 Diameter A-B at the top of the constant diameter length of the shaft 201mm, diameter at the bottom of the shaft 240mm. (*Note: ' denotes 'minutes'*)

Cosine $\theta = (201 \div 240) = 0.8375$

Therefore $\theta = 33°6'$ and $\theta \div 4 = 8° 16.5'$

To calculate the diameter at S, R, and Q multiply the cosine of the angle from E-D measured anti-clockwise to the appropriate radius. Therefore:

Diameter at S = 240 x cos (3 x [8° 16.5']) = 240 x 0.9076 = 218mm

Diameter at R = 240 x cos (2 x [8° 16.5']) = 240 x 0.9586 = 230mm

Diameter at Q = 240 x cos [8° 16.5'] = 240 x 0.9896 = 238 mm

Making Columns

If you wish large-diameter column shafts to be and remain free of cracking you will be forced to use stave-lamination. You should use loose splines to locate the staves. The number and dimensions of the staves and the placement of the splines need to be carefully considered.

Obviously you need a lathe and handling equipment appropriate to the size of columns you intend to turn. There are though no special difficulties in the turning process.

Conclusion

Post-modern designers such as Michael Graves and Thomas Gordon Smith 'rediscovered' classical columns, modifying their forms and applying colour. From 1980 I pioneered the turning of power pole columns using waste *Eucalyptus* power poles to provide an affordable source of shaft raw material, and in the process created an Australian vernacular variant. These columns were produced in heights from 7 metres, down to 400 mm for coffee table legs, particularly under glass tops. Others in America and Europe have similarly advanced and confirmed the aesthetic potential of the column.

Mike Darlow lives in Exeter, NSW. He is the author of The Practice of Woodturning book and video. His new book 'The Fundamentals of Woodturning', will be published in March 1998.

SPIRIT OF TREE

Spirit of Tree is the title of the first solo exhibition in Brisbane of master craftsman Yoshi Noai. Noai underwent years of rigorous training in traditional woodworking techniques in Japan before coming to Australia in 1979. His area of specialisation was furniture making, but he has since applied his considerable skills to traditional Japanese architecture, interiors, large sculptures and more recently, vessels.

Yoshi works exclusively with traditional Japanese hand tools and techniques. His concerns for the environment have inspired him to use a sometimes surprising selection of timbers including mango, jacaranda and camphor laurel.

The exhibition includes sculptures, chairs and vessels, all carved and constructed from timber found in his local northern NSW environment. Noai's virtuosic woodworking skills and refined aesthetic sense are evident in the deceptively simple organic forms of his works.

The vessels have been carved from forked sections of trees and their shapes reflect the structure of the tree. In many of the pieces the natural wood is contrasted with a vibrant red finish. This surface is resin mixed with black of red paint, a treatment devised by Noai which alludes to Japanese lacquer ware. Although contemporary, all of Yoshi's work contains subtle references to traditional Japanese craft practice.

Japanese craftsmen have an intimate understanding of the beauty and properties of wood, gained from centuries of experience. This knowledge and tradition imbues Noai's sculptures, furniture and vessels, and his work reflects a profound respect for nature.

Yoshi Noai has had many important commissions and exhibitions in Japan, northern NSW and Sydney and he has been continuously refining and developing his work. The exhibition is on display at Brisbane City Gallery until March 22.

By Linda Nathan

ONE THING LEADS TO ANOTHER

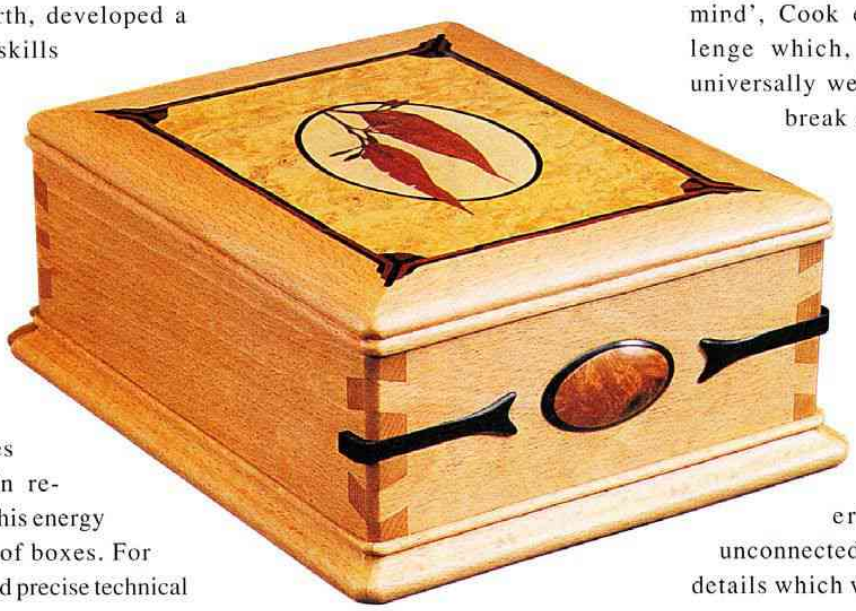
The work of Peter Cook is the result of a remarkable synthesis of diverse life experiences and self-taught skills.

Sometimes people observe the lives and endeavours of others and fail to see a common thread. Parents in particular can look with despair at the stops and starts of their children and wonder if they will ever get a 'real' job.

Before finding his path Peter Cook, born and bred in Perth, developed a number of creative skills and interests. His love of travel, music, poetry, writing and the natural environment is as much a part of what he does now as his self-taught skills of metal and woodworking.

He was a picture framer and he makes fine furniture, but in recent years the focus of his energy has been the making of boxes. For their select materials and precise technical execution alone, the latter would be noteworthy.

Cook's boxes are not, however, mere passive containers. Opening a box is a reflexive action—if it won't open the urge to find out how it will is almost instinctive. Cook believes his most functional boxes are those he terms 'puzzle boxes'. These delight and bedevil those who seek to know them as a sequence of pressing, sliding and lifting movements must be discovered in order to open them.



'The box is a fundamental container of knowledge and the key is in your mind', Cook explains. It is a challenge which, he has observed, is universally welcomed. 'Puzzle boxes break down barriers between the rich and the poor, between men and women, kids and old people—everyone seems to be fascinated by them.'

Becoming a maker of puzzle boxes was for Peter Cook a little like discovering the apparently unconnected sequence of events and details which would unlock the secret

of his own life. When he left school he started a course in mechanical engineering drafting. He didn't complete the course but rediscovered a love of and talent for drawing quasi-mythological and science fantasy images in the process.

Later on, as a night watchman at Curtin University, he was allowed to use the metal and woodworking shops there. Significantly, his first project was to repair a puzzle box given to him as a child by his grandparents. After that he started making furniture. Observing his talent the university staff began to commission furniture from him. A series of three coffee tables produced at that time gave a clue to his future direction. Each table had a spring-loaded mechanism operated by a rod running through one of the legs. Turning the leg would magically cause a sliding lid to open on top of the table.

As diverse as his areas of interest have been, Cook has managed to intensively research the history and traditions of furniture making; stone cutting, polishing and setting; metalwork and jewellery making; clocks and clockmaking as well as the more esoteric science of automaton.

Future directions will see even greater levels of complexity in the mechanical sequencing of his pieces, however he feels he will lean more towards organic and sculptural forms. 'My work grew along quite traditional lines, development being governed by the need to gain skills, and the dictates of clients and commission'. 'Now', he says, 'I am beginning to push the wooden, mechanised three dimensional objects I make away from this traditional exigency, back towards the freeform organic nature closest to my heart.'

Like his own life Cook's puzzle boxes represent a process of discovery and learning. At this point the diverse strands of his life have come together. Paradoxically though, what may initially have seemed a destination is now a starting place for new creative directions.

Some of Peter Cook's boxes are presented at right and on the following pages. He can be contacted on (08) 9386 1799

Woodwink

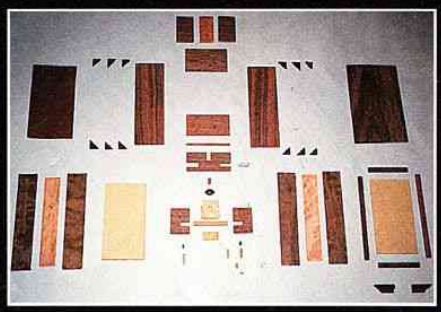
The 'Woodwink' puzzle box series is shown here in the process of manufacture as well as before and after assembly.

Peter Cook's formula for pricing his early commissions was simply to double the cost of the materials—now, however, he charges by the hour. Clients who can afford to pay for 200-500 hours of work are in the minority.

In 1993 Cook ceased working as a picture framer and entered the government sponsored NEIS (New Enterprise Incentive Scheme) and used the time to develop a more affordable limited edition series of 250 puzzle boxes.

The boxes were made in batches using 120 specially designed jigs to cut, machine and assemble the 53 components of each box. Over 1,600 hours were spent designing the box and streamlining the process of manufacture.

'Woodwink' is presented in a handcrafted presentation box accompanied by a certificate of authenticity. Each box is signed and numbered according to its order of manufacture—twenty five of the jarrah, sheoak and snakewood boxes remain. A new limited edition puzzle box is currently being prototyped.



Above: The many components of 'Woodwink' shown in exploded view and in the process of batch production.

Gold Box

Designed and made by Peter Cook, 1997, 280 x 200 x 100mm

A Goldfields theme is reflected in the use of red morrel, sandalwood and jam and an inlaid motif of a crossed pick and shovel over a panning dish (a stylisation of the symbol used to denote a mine site on topographical maps). A secret locking mechanism along with an overall traditional styling was part of the commission.

The primary timber, jarrah, was sourced from a storm fallen tree. The box is lined with sandalwood (from a deadwood section) which has been left unfinished to allow its fragrance to exude. Jam and sandalwood stringing frame the lid which features a panel of highly figured red morrel. The ebony used for the bushes and the guides was salvaged from old piano keys.

The inside of the lid carries an engraved silver plaque. Other exposed fittings are solid silver. Marino leather has been stained blonde to match the sandalwood and lines the inner lid and bottom, and a removable panel partitions off a section of the interior.

A three-step, sprung mechanism operates the lock. In the advent of any necessary repairs the mechanisms are accessible via a removable 'component block'. Marine ply, more stable than solid timber, houses the front and base components.

Metal Parts

The mechanism components are removable, however they must be dismantled in sequence. Slides, pivots, levers and exposed fittings are fabricated from brass, using a jewellers fretsaw and needle files. Silver soldering is used in some of the more complex parts.

Pivoting parts ride in piano bushes or ebony blocks. The flat ribbon spring behind the box catch is made from clock spring flat stock. Other coil type springs were salvaged from an old mechanical counting machine.

Woodwork

Jarrah, sandalwood and morrel blanks were first machined to dimension then divided into separate box components. All joints are hand cut. Cavities and recesses for mechanisms were cut, then, before assembly began, all parts of the box were arranged and photographed

in the exploded view seen opposite.

Assembly

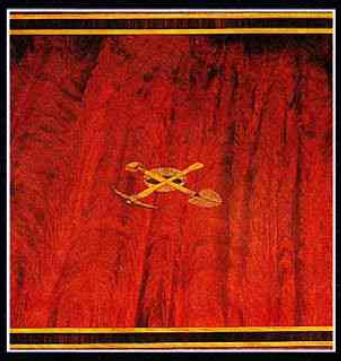
The walls of the box and lid frame were glued up around stabilising frames. Red morrel burl is by nature unstable, so the lid panel was sliced into two 2mm thick veneers and sandwich laminated onto marine ply. Internal book-matched lining panels are mitred.

Inlay

The inlaid motif on the lid was first sketched onto tracing paper then transferred using carbon paper onto the respective parts. Sandalwood depicts the handles and walnut the steel pick and shovel. Jam wood was used for the shaded areas. Each part was shaped with needle files, small sanding paddles, a razor blade and small chisels.

With the image assembled on gum paper, the outline was traced onto the red morrel and the area to be removed was dotted with small holes to a depth of 2mm. The recess was cleared of waste with small chisels, then the prepared parts were pressed into place and shaved smooth with a cabinet scraper.

The meeting faces of the lid and box were made square and flat on a large sanding board. Corner key slots were cut into the lid frame and base moulding and timber key pieces glued in, to reinforce these vulnerable points.



The red morrel button was first laminated to a stable sheoak backing, then marked and shaped by eye, as was the sandalwood surround. In the rear sliding section of moulding, yellow tingle replaces sandalwood, approximating colour while giving extreme strength and hardness to this moving part.

Final assembly involved fitting and fine-tuning of all moving parts for smooth operation, followed by the recessing and fitting of all exposed hardware, hinges, lid-stay and so on. The lid and base mouldings were then shaped and the box finished all over with a cabinet scraper before being finely sanded and French polished.

Photos pages 48, 49: Victor France

An exploded view of Peter Cook's 'Gold' Box, which took a total of 250 hours to make.

Mead Box by Peter Cook, 1997, 520 x 296 x 98mm

Mead Box

This box was designed to house a collection of watches. However, with the watch cushion removed, the interior is properly finished and lined, and may be adapted to an alternative purpose at a later stage.

Woodwork

The lid panel features English ash burr while the box walls are made from WA sheoak. South African black locust was chosen along with Tasmanian blackwood for subtle colour variations in the bandings and button detail.

All timbers were carefully selected, sawn and matched to maximise the grain markings of each species. The lid release button was cut from alongside a knot in the tree, hence the slight 'wave' mimicking the ellipse and curves of the lid.

All sections from their original blanks were milled and numbered. The bandings were alternately laminated and thicknessed and the face of the locust cross bandings was sloped.

The wall sections were glued up; each wall being a composite of ten pieces of wood.

The lid frame sections were prepared, then the sides of the box and lid were docked to length and the 45° mitres cut with a shooting board and a hand plane. For strength, concealed pocket joints were cut into the mitres of the lid frame and walls and fitted with wooden key pieces. Internal recesses were prepared in the front wall for the button mount assembly.

The walls and lid were glued and assembled around stabilising frames. After drying, the inner face of the lid frame was veneered with blackwood, hiding the corner joints. The base and lid panels were veneered over core panels, and the ash burr lid panel was glued into the lid frame. The bandings for the lid were then cut, mitred and inlaid into prepared recesses. All internal trims and lining panels were cut and mitred on the shooting board, then dry fitted with the base.

Inlay

The design for the inlaid intials was first sketched onto paper and then transferred onto the lid with carbon paper. The material to be removed was dotted with small holes on the drill press, and the waste was carefully cleared with small shop-made chisels.

A 'rubbing' of the recess was then made and used as the pattern for the inlay pieces. Reinforced with gum paper, the small fragile pieces were cut out with a fretsaw, trimmed, sanded and carefully trial fitted before being glued and pressed into place. The whole motif was finally shaved flush with the surrounding surface.

With the box assembled, the outer profile was carved into the walls using a combination of table-saw coving, routing, hand planing and shaping.

The mechanical pieces of the button assembly were made from WA yellow tingle, selected for its extreme hardness. The button mount plate is hinged at its bottom via two pins in separate tingle hinge blocks.

The release button and its blackwood surround were carefully carved and shaped for smooth action. An opening was cut through the front wall and the button was mounted to the yellow tingle assembly behind. Lastly the blackwood surround was recessed into the wall and fitted.

Metalwork

All exposed metalwork in the watch case is solid sterling silver and was custom designed and handcrafted with fretsaw, needle files, silver solder, folding and polishing techniques. The fittings are secured with concealed fixings.

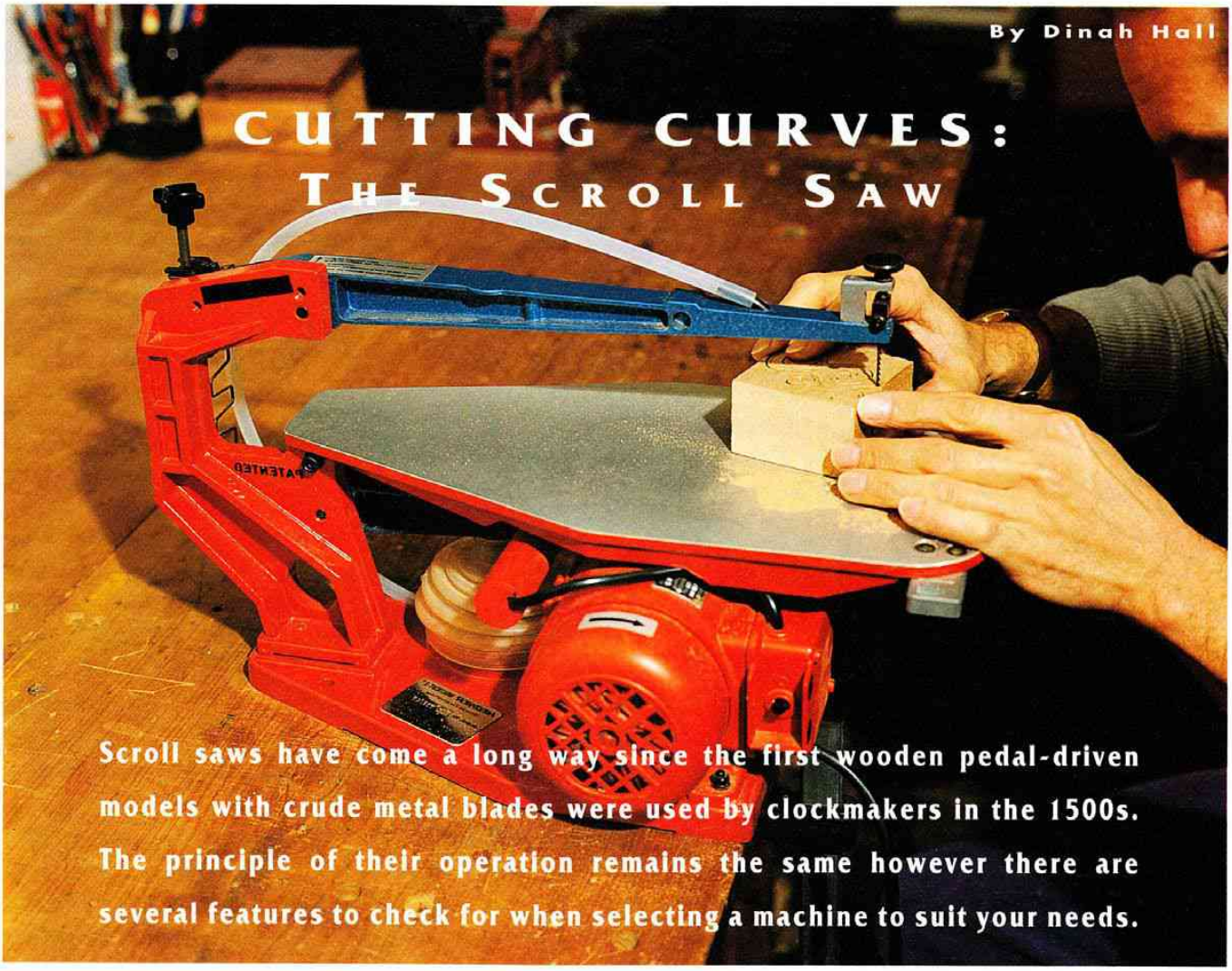
Finishing

A special mounting cushion was constructed from MDF to house the watches. The external surfaces were lightly padded and covered with a synthentic suede. The pockets are lined with satin. Each of the watch supports have a core of ribbon spring material coated with a heat shrink plastic. This is in turn padded and then covered with suede. The box was traditionally French polished.

Photos: Tim Lofthouse

By Dinah Hall

CUTTING CURVES: THE SCROLL SAW



Scroll saws have come a long way since the first wooden pedal-driven models with crude metal blades were used by clockmakers in the 1500s. The principle of their operation remains the same however there are several features to check for when selecting a machine to suit your needs.

The modern-day scroll or fret saw will accurately cut the tightest of curves on an infinite variety of materials, from the thinnest veneers to 50mm thick stock. The scroll saw can be used to create the delicate lines of fretwork, the intricate moving lines of marquetry or the constant curves of puzzles.

Considered relatively safe by virtue of their 'non-aggressive' action, they are favoured by toymakers and fine cabinetmakers alike. There are now a number of models on the market to choose from.

Scroll Saw Anatomy

A fine blade, secured by arms at the top and bottom, is inserted through a hole in the saw table. The constant tension of the blade allows the downward stroke to cut tight curves without the blade breaking—well, not usually. Basically there are three types of scroll saw: the rigid arm, the C-arm and the parallel arm.

Rigid Arm

A rigid cast or tubular overarm is fixed to the base of the saw where the blade moves up and down on a direct drive from the motor. The arm may be hinged for threading work. The blade is under the tension of an engaged spring. As the blade pulls down it cuts, and the tension in the spring increases until it returns up under the pull of the spring.

The problem with this older style saw is that because the tension is not constant, the blade tends to flex in tight curves and is therefore more likely to break. Breakages can be prevented by increasing the thickness of the stock and using stiffer and wider blades however this limits the tightness of curves.

C-Arm

The C-arm saw has a blade attached to the two ends of the 'C'-shape casting and the whole C moves up and down in a short arc. The C-arm is connected to an offset crank and the blade is tensioned with an eccentric cam or handscrew that pulls up on the upper blade holder.

The single arm saw is arguably most unlikely to give a perfectly vertical cut due to the arcing movement. Another drawback of this design is that if a blade breaks then the arms do not automatically stop but continue to stab the piece of work until the saw is turned off.

Parallel/Dual Arm

The parallel arm is, as the name suggests, two arms moving independently. The blade is attached with a screw/clamp between the two arms and creates the tension in the blade as it pulls the two arms together. Only the lower arm is powered.

The parallel arm saw is possibly the most widely used type of scroll saw as it offers the best cutting action.

The pivoting arms allow the blade to stay perpendicular to the saw table and therefore permit a more consistently square cut on curves.

However, beware! Check how vertical the cut is by turning off the motor and manually moving the arm—if it moves away from the vertical position the less likely you are to get a vertical cut. In some models the upper arm automatically stops when a blade breaks—a safety plus.

What to Look For

Before biting the bullet and actually buying, assess your needs. There's no need to squander your inheritance on an up-market professional model if you only want to do some small scale fretwork. On the other hand, there's no point burning good money on a model that will limit you.

Consider the type of stock you are most likely to be working with, how intricate your cuts will be and the types of materials you will use. Take your own stock into the shop and ask if you can try out a demo model. At a minimum, your supplier may be persuaded to demonstrate the various models for you.

One supplier (Power Tool Specialists) offers the test of resting a 50c coin on its edge on the machine table as a general guide to quality. If it vibrates or falls over when the motor is turned on, the tension may need adjusting—otherwise forget this model and look further up the range. The vibration plus the quality of the stroke of the arm suggests possible inaccuracy.

Another general guide to a good scroll saw is the quality of cut. A good machine will cut to a finish, that is, there should be no chips or need for sanding once the cut has been made. A scroll saw blade that cuts square will appear as a clean vertical line when running, not a blur of movement. Other issues to consider include:

Throat

The throat size determines the width of timber you can work on. It is measured from the middle of the blade to the back of the arm. Generally 300-400mm should be sought as this allows larger pieces of timber to be cut. (The depth of cut or height is generally around 50mm). A big throat is great if you work lots of larger pieces of timber but a disadvantage if the tensioning is at the rear of the machine.

Power

While power is generally not a real issue with these saws some of the lower-priced models are a little underpowered and may start to struggle with a 90mm piece of timber. Somewhere in the 90-100 watts range would be considered a minimum. Take your own stock in for a trial run. Check on the location of the switch. Ideally it should be easy to reach while working. Some models offer an auxiliary foot switch which is great when you need three hands and is also a good safety feature.

Speed

While the single speed of many models is appropriate for most work, some models offer variable speed. The lower speeds which don't burn are ideal for sawing the non-ferrous metals (such as aluminium and copper), perspex and plastics often used in model making. Slower speeds may also prove useful on very thin veneers. Electronic variable speed is preferable to multi-speed which is effected by the changing of belts.

Blades

Non-pinned blades are the ideal as they clamp onto the arm rather than the pin. Look for a model that will, at the very least, accept an adaptor. There are 2-3 pinned blades for fine to coarse cuts, while there are up to 50 different types of non-pinned blades which can be quickly changed. Pinned blades vary in teeth per inch, widths and thicknesses and include the spiral blade. The spiral blade is the ideal learner's tool as it allows a piece to be turned around the blade in any direction as the blade has teeth all around, like a miniature rasp.

Another benefit of non-pinned blades is that they can easily be removed and

re-inserted through a small drilled hole as may be necessary for intricate work, such as the spokes on a model wheel for instance. Such manoeuvres are impossible with the pinned blade as the pins themselves are up to 3-4 mm wide making them too wide to be inserted in fine holes. The clamping system used with non-pinned blades permits the use of an emery board, in limited cases, to sand if the cut should not be as perfect as hoped.

Non-pinned blades should pivot freely in both the C-Arm and parallel-style scroll saws to ensure a square cut. If not, the blade will bend at the point where it comes out of the clamps and cause metal fatigue and premature breakages. An important issue worth considering is the visibility of the blade.

Safety Guards

Because the scrollsaw cuts with a relatively non-aggressive action the need for a blade guard is arguable. Some models have been marketed as being safe for children to use on the basis of a clear perspex safety guard over the blade. This may, however, actually hinder the ability to see the cut.

Dust Removal

The better models deal with dust by including a dust bellow which conducts air through a tube along the arm which blows down on the blade so that the line of work is always visible. Some serious scroll saw exponents have found that aquarium pumps are more effective as they expel up to ten times as much air. Other models have dust extraction under the table which can be connected to the workshop dust extraction unit.

Table

While the shape of the table is not critical the ability of the work to move smoothly over it is. (Many compare the action of the scroll saw to that of a sewing machine, a gentle feed and take up action where the surface of the table is critical to the action of the machine.) Most tables will tilt to the left or right to 45° and some will tilt forwards to 15°. Generally speaking, a single direction is adequate.

Stands

All models come without stands and generally do not need to be bolted onto a table. A free-standing machine offers ease of movement about the workpiece. A three-legged stand is perfect for level work where the ground cannot be guaranteed to be level, such as at demonstration sites.

Construction

Cast aluminium or iron offers the least vibration and best accuracy, although construction is generally not an issue. Extra weight will counteract vibration to an extent, however this is a drawback if your scroll saw has to do some travelling. Apart from inaccuracy, vibration causes noise—an unwanted health hazard in the workshop.

Whats On the Market

Scroll saws worth considering start at around $150 and offer 90 watts of power, single high speed (1440 cuts per minute), 19mm with dust blower. This model, however, is limited to pinned blades. At the other end of the market there is a model with a 500mm throat, 100w motor, four blade clamps with knob and screws, 76 sawblades, a clamp centering tool and an electronic motor with speeds from 400-1400rpm which sells for $3740. Clearly, there are models in between worth considering.

Before buying, do the obvious: check out the warranty, where to take it for repairs and the availability of parts and supplies and finally the company's reputation—and ask your friends, experience is everything.

Overleaf is a table of comparison of some of the many scroll saws available.

Thanks to Greg Bailey of MacDonnell Rd Hardware, Margate, Qld and Harold Lauer of Power Tool Specialists, Canberra, for input into this article.

Further Reading

Spielman, Patrick. The Art of the Scroll Saw, *Sterling/Chapelle Publishing, N.Y 1995*

Spielman, Patrick. Scroll Saw Handbook, *Sterling Publishing Co, NY 1986*

Spielman, Patrick & Dahlqvist Gösta, Scroll Saw Scandinavian Patterns and Projects, *Sterling Publishing Co, NY, 1995*

Spielman, Patrick & Roehl Carl. Making Wooden Bowls with a Router and Scroll Saw, *Sterling Publishing Co, NY 1992*

Key To Symbols

spm strokes per minute (elec. speed change)

cpm cuts per minute (belt speed change)

P parallel; C C-arm; R rigid

** 170, 450, 790, 1140, 1370 rpm

* heavy duty steel stand included with optional foot or table top speed control for $140, extra large table 22"x14" tilts left and right.

an adaptor for unpinned blades is supplied as a standard fitting.

@ lightweight (41kg) includes steel stand with graphite arm for noise reduction

^ 300-2000; ^^ 400-1800 rpm

~ top arm lifts for inside cuts

+ includes 2 blade clamps, 38 blades and includes electronic motor 400-1400rpm, 65mm cutting height

++ includes 4 blade clamps, 76 blades, 1 clamp centering tool and surcharge on electronic motor 400-1400rpm, 65mm max. cutting height

VBelt drive speeds: 1600, 1270, 1100, 700rpm; base of machined cast iron, cutting table of ribbed casting

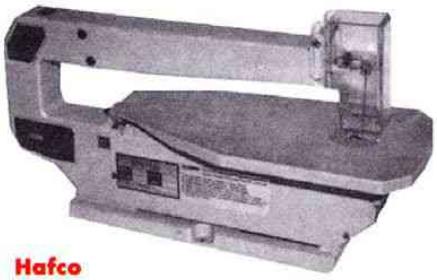
• speeds: 900, 1400

§ Base of machined cast iron, cutting table of ribbed casting

Suppliers of Scroll Saws

*Carba-Tec: (**Delta, Proxxon**) 1800 658 111*
*Advantech: (**Scheppach**) 1800 355 635*
*MIK International: (**Hegner**) (08) 8333 2977*
*Hare & Forbes: (**Hafco**) (02) 9633 4099 (07) 3849 1888 (08) 8346 5522*
*MacDonnell Rd Hardware: (**Ryobi, Delta, WMS**) (07) 3283 1558*
*Power Tool Specialists: (**Hegner, Proxxon**) (02) 6280 4966*
*The Woodworks Book & Tool Co: (**Hegner**) (02) 9807 7244*
*Woodman Group: (**Excalibur, Rexon**) (03) 9555 5199, (02) 9708 3233, (07) 3844 4433, (08) 8346 4561, (08) 9272 3844*

Scrollsaw	Motor	Throat	Speed	Blades	Arm	Price
Delta						
DE40-530	1/5hp	16"	1750	pinless	p	$199
DE40-540	1/4hp	16"	vari^^	pinless	p	$329
DE40-650	1/4hp	18"	vari.^	pinless	C	$849@
Excalibur by Sommerville						
EX30VSXX	1/6hp	30"	vari.	pinned	P~	$2695
EX19VSXX	1/6hp	19"	vari.	pinned	p	$2389
EX19SD	1/4hp	19"	3(belts)	pinned	P	$1440
Hafco						
B16	1/5hp	16"	single	both	C	$160
BV 16	1/5hp	16"	vari.	both	C	$329
SS 23	1/4hp	23"	single	both	P	$399
Hegner Multicut						
1	1/5hp	14.5"	vari.	pinless	P	$1165+
2S	1/5hp	18"	vari.	pinless	P	$1710++
3	1/5hp	25"	vari.	pinless	P	$3737++§
Quick	1/5hp	22"	vari.	pinless	P	$2080++
Polycut 3	1/4hp	20"	v-belt(4)	pinless	P	$3831##§
Proxxon						
28092	1.7amp	16"	990,1500sp	both	P	$250
Rexon						
TS015	n/a	15"	1725	n/a	n/a	n/a
Ryobi						
(SC160)	1/4hp	16"	1400spm	pinned#	P	$299
(SC162VS)	1/4hp	16"	vari.	pinned#	P	$399
Scheppach						
DS402	1/4hp	16"	2•	both	P	$562
Sontex						
(45SS16)	70	16"	n/a	pinned	P	$190
Sontex	1/6hp	16"	950	pinless	R	$289
WMS						
SKS21	1/4hp	21"	5**	pinless	P	$680*
WMS	n/a	15"	1	both	P	$245



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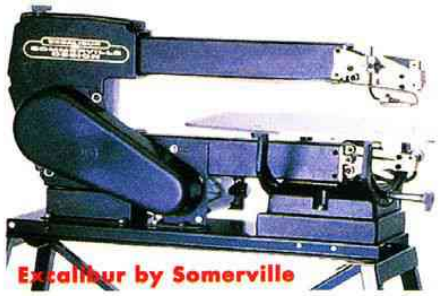
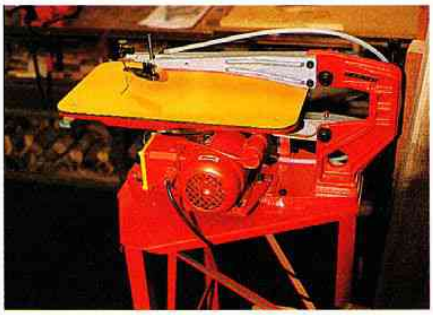


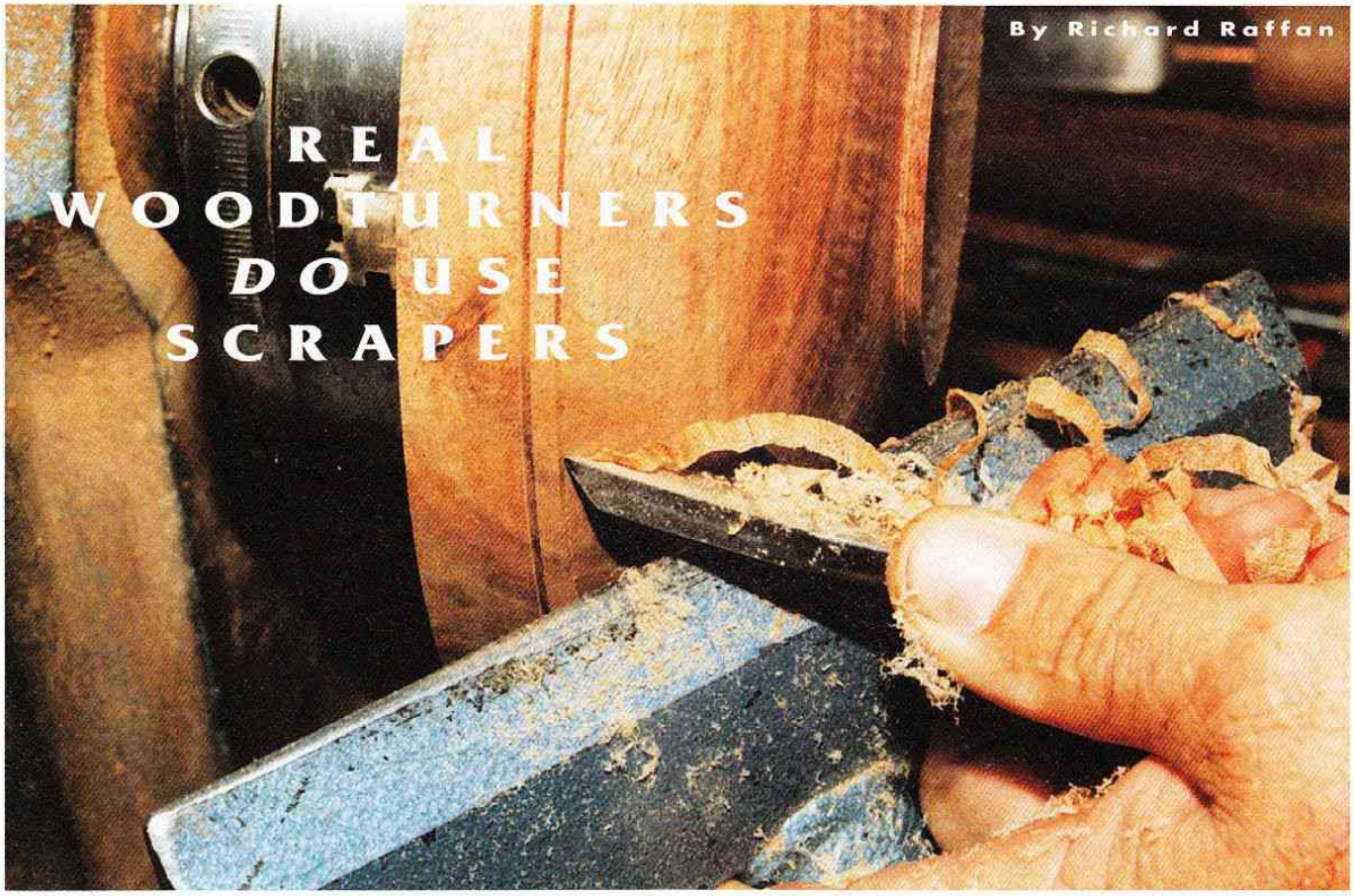
Excalibur by Somerville

Scheppach DS402

Delta

Proxxon





By Richard Raffan

REAL WOODTURNERS *DO* USE SCRAPERS

Scrapers are a source of apprehension to many novice woodturners and derided by some professionals and teachers. Richard Raffan offers an insight into how you can make best use of these essential woodturning tools.

Within minutes of venturing into the workshop on the first day of my woodturning career I was initiated into one of the great myths and practices of woodturning. With a twinkle in his eye the boss said 'you might have heard that real turners don't use scrapers—but we do in this workshop. It makes life a lot easier'.

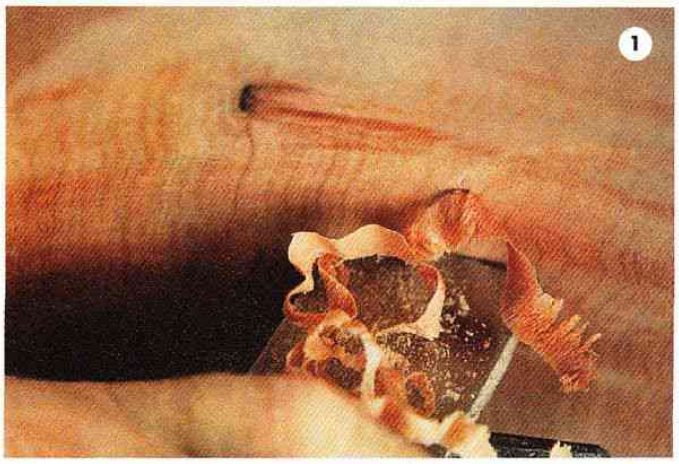
A selection of scrapers

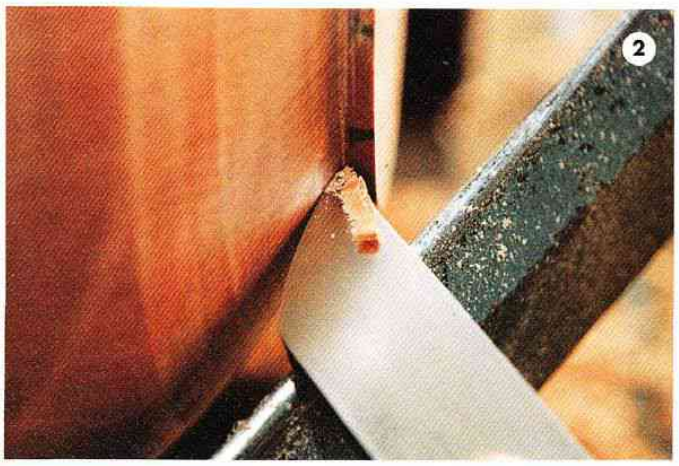
In the wonderful but sometimes bitter world of woodturning, those of us who use scrapers are often maligned and dismissed as inept by the cutting-tools-must-be-used-at-all-times brigade. This myth appears to have arisen in the late sixties via a writer on woodturning popular at the time. It must have held back thousands of would-be turners who thought they would be breaking some divine regulation by even so much as looking at a scraper. There are teachers of woodturning who even advertise the fact that no scrapers are used in their workshops. Don't they know how? Or are they too blinkered to try. It would be comical if it wasn't so sad.

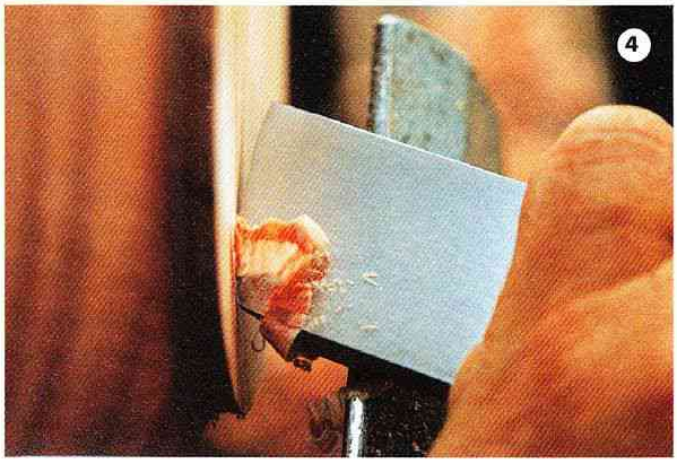
Scraping techniques will generally improve a gouge cut surface. When a gouge cuts it makes a groove similar to that on a vinyl record disk. This might be a very fine groove, but it's a groove nevertheless. By using a scraper you present a cutting edge which removes the sides of the groove to leave the surface smooth. If you fail to achieve a smooth surface using the tool flat on the rest (which is normally recommended), it can be tilted on edge to shear scrape. On most timbers you can use scraping techniques to obtain a surface devoid of tear-out and overly ready for sanding. On very hard woods the surface should be glassy smooth.

I am certain the origin of this myth that real-woodturners-don't-use-scrapers lies with spindle turners who do indeed use only gouges, chisels and parting tools except in some highly specialised areas involving very hard woods and intricate detail, like the manufacture of boxwood chess pieces.

Scraping techniques rarely produce







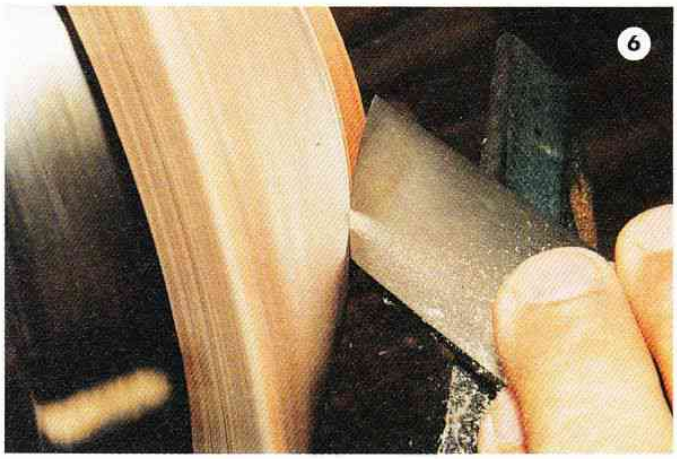
good surfaces on spindles, but for endgrain hollowing and facework they will usually produce the best surfaces. Scrapers should be regarded as tools for refining gouge cut surfaces on facework (where the grain is aligned at 90° to the lathe axis), and refining surfaces within endgrain hollows such as goblets or boxes. My rule has always been to remove the bulk of the waste using gouges, then finish with scrapers if need be.

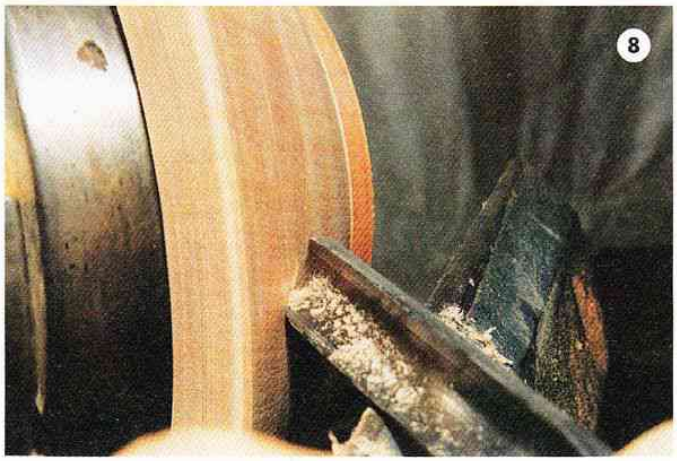
The edge I commonly use has a slight burr straight off an 80 grit grinding wheel. I find this ideal for general use, especially for the relatively heavy cuts which sweep across the inside curve of a jarrah, red gum or Tasmanian blackwood bowl as I refine the form as in photo 1. A honed edge can leave a smoother surface, but when the job has to be sanded and I'm in production mode I don't bother to hone, knowing that sanding is a faster route to the completion of my bowl. However, a wire edge is far too aggressive on harder woods such as mulga or gidgee: catches are brutal, so for such densely grained material I always hone the edge.

Scrapers are rarely used to best advantage by the majority of the hundreds of woodturners I've seen in action. Rarely is the tool sharp enough. If the lightest touch against the revolving wood fails to produce a little curly shaving, you should resharpen the edge rather than use force to push the tool into the wood. Use only a small portion of the edge at one time: you can use the remainder of the edge at some other stage (photo 2).

Scrapers must always be used so that if they catch the edge will swing directly into space. Thus on all profiles—that is all external surfaces—use scrapers with the blade tilted down a degree or two from horizontal. On internal curves—such as working inside a bowl or endgrain hollow—you can tilt the tool upwards a degree or two working above centre without risk of a major catch. Typically, I have the rest on or a fraction above centre height working internally, finding this can lead to a cleaner cut. But on all internal flat surfaces, such as the bottom of a bowl or coaster, the tool must be tilted down.

The very word scraper has an onomatopoeic ring to it, implying the sort of grating force needed to shift old paint from surfaces being refurbished, which is how these tools tend to be used. They should be called something less aggressive, like strokers. Scrapers can be used to take wide ribbons of shavings in roughing cuts (photo 1), but the surface tends to be left a bit torn, especially on endgrain or in areas where the fibres being cut lie parallel to the cutting edge. This is fine for hogging out the form (although much slower than using a gouge) and on timbers which work well the surface will be ready for sanding. As with all turning the secret is to let the wood come to the tool. If you force a scraping edge into the wood the tool will invariably tear the fibres and very likely catch. You need to sweep a 'radiused' scraper across the surface, so it skims across it like a boat planing over water. Square end scrapers used at 90° to the surface





(photo 3) need such a fine touch to avoid catches that they are best kept for situations such as deep hollows, where a skewed edge can't reach.

External Curves And Profiles

The way in which scrapers are used can best be seen on the broad curves and slightly concave base of a bowl profile as in photos 2 and 4). As mentioned above, where possible the blade of the tool should lie at an angle to the surface being cut. As the cut proceeds, so the tool can be dragged in the direction you want to cut, across the surface rather than directly against it. Primarily, a tangential cut limits the pressure you might put into the cut. If the tool blade lies at 90° to the surface being cut, the tool is much more likely to catch (photos 3 and 5) and it is difficult to sweep the edge accurately across a flat surface, let alone around a curve.

On a convex curve a skewed straight edge is easiest to use, but a slightly radiused edge can also be used on somewhat concave surfaces, so this is my preferred shape. I can get into a corner and then swivel the tool so the point of cut drifts from one end of the edge to the other as in photo 2. The main problem is to take a light enough cut. Think in terms of stroking the surface with pressure akin to when you rub your hands together under a hot-air hand-drier. Again, this is difficult if the tool lies at 90° to the surface you're cutting and the tool has to be pushed directly against the wood in order to cut. A skewed tool is difficult to push directly against the surface, but it can be squeezed against the wood with great control.

For all these cuts the scraper has been kept flat on the rest, but the resulting surface isn't always as smooth as might be desired, particularly on the endgrain where some fibres are barely supported. The secret here is to shear scrape by tilting the tool on its side so the edge slices the endgrain at an angle. Using this cut you can stroke the curve of the wood tangentially by easing the tool back and forth to work on a recalcitrant bit of grain. Shear cuts can be made using standard scrapers, keeping the point of cut in the lower half of the edge as in photo 6. Here the tool rides on the bottom left corner of the blade, so it will be difficult to move smoothly along a T-rest which is in anyway pitted. T-rests should be filed smooth regularly, although these days you can almost forget about that and use one of the specialist skewed shear scraping tools which have rounded sides designed to slide down the roughest rest.

I find a spear-point scraper enormously useful for shear scraping into corners and around details like beads. Photo 7 shows the spear-point used to detail a bowl foot. The long point enables you to shear scrape right to the top to the foot at the base of the bowl wall, an area which can be very difficult to cut cleanly with a gouge. They are also useful for cleaning up around beads (photo 8). A spear-point scraper with rounded sides is now manufactured by Henry Taylor, although it's easy enough to grind your own from 25mm x 6mm flat bar stock. Round the

lower corners of the blade on a sander.

Shear scraping is also possible using a fingernail ground shallow gouge as in photo 9. The tool must be rolled on its side so the flute faces the surface you're cutting and the fullness of the curve lies at around 45° to the wood.

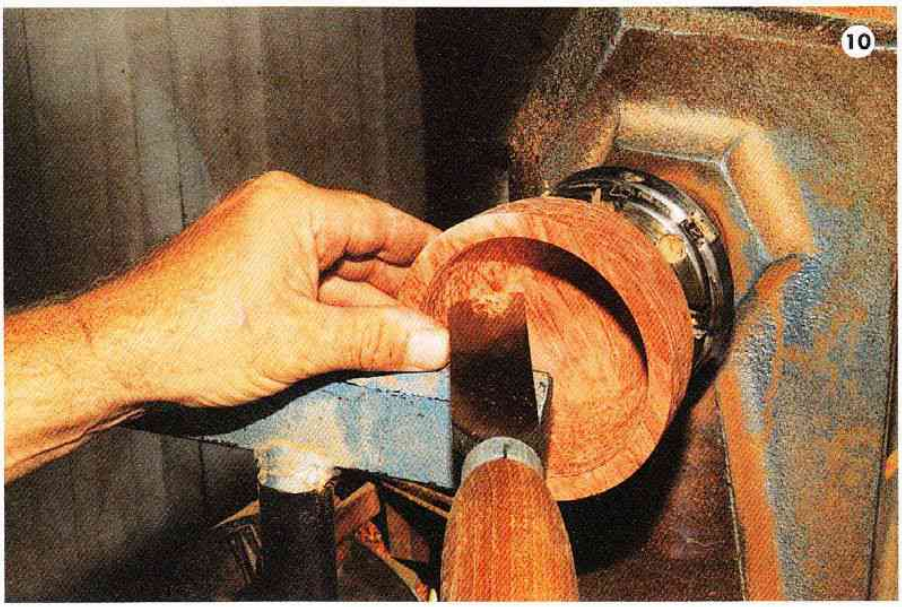
Internal Curves

The same rules apply to using scrapers on internal curves (typically bowls for most turners) as on profiles. The main problems are coping with the increase in leverage which occurs when you can't get the rest as close as you'd like to the point of cut, and thin wood which vibrates. The nearer you cut to the rim the ever-more delicate must be your touch. I am exceedingly wary of scraping internal rims of bowls because the walls become thin and vibrate with the slightest excess pressure. I aim to cut the first 25mm using a gouge, then refine the rest of the curve using scrapers which I feel give me more control as I create the form I want. If you have to use scraping techniques, go for shear scraping with a light tool and support the wood behind the tool with your fingers. If your fingers get too hot, you're pushing the tool too hard into the cut.

On internal curves my first rule is to use as big a tool as possible with a radius just tighter than the curve I want to cut as in photo 10. I still use only a small portion of the edge at one time, never attempting to use the scraper as a profile cutter because the catches are so big. I use a large scraper in preference to one smaller because it is easy to relate the curve I'm cutting to the broad sweep of the tool edge. I barely move the tool on the rest to ease the point of cut along the tool edge. If you use a narrower scraper you need a much broader action to sweep the tight radius of the edge accurately around a curve.

If you keep the rest at or slightly above centre when cutting internal curves the tool blade needs to tilt below horizontal only at centre. Elsewhere if you have a bit of a catch the edge will carry into space. As the wood being turned gets thinner you need to support it behind the point of cut to dampen the vibration as in photo 10. My fingers equalise the pressure of the tool, they don't get burnt if you let the wood come to the tool and avoid forcing the edge into the cut. My thumb acts as a mobile fulcrum on the rest against which the tool blade is pressured by my right hand. The tool must stay flat on the rest here.


9


10

Woodturners who eschew scrapers don't know what they're missing, so for those of you having problems here's a summary of points to bear in mind.

- On flat surfaces and profiles scrapers must be tilted a few degrees below horizontal.
- Keep the tool flat on the rest unless shear scraping.
- When shear scraping keep the point of cut on the lower half of the edge.
- Don't push the edge into the wood; let the wood come to the tool. Finishing cuts should stroke the surface tangentially to produce fine curly shavings or dust depending on the timber.
- If you don't get dust or tiny shavings when the edge is eased gently against the wood, sharpen or hone the edge.
- Internally use the largest scraper possible (up to 40mm wide) with a radius slightly tighter than the curve you want to cut.
- Use only a small portion of the edge at one time, but all the edge at sometime.
- Keep the top side of the tool polished. □

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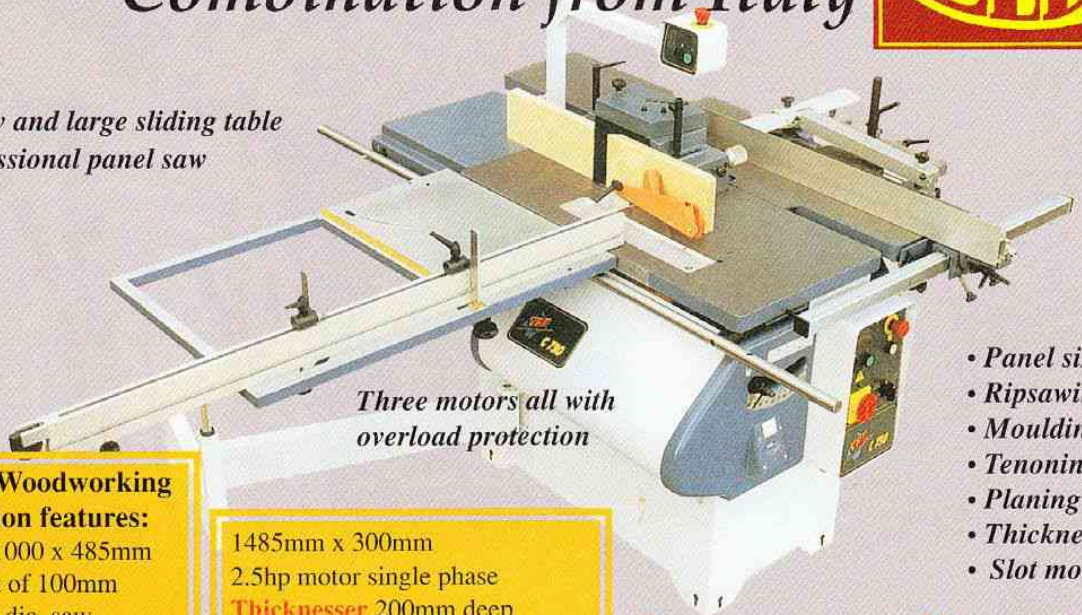

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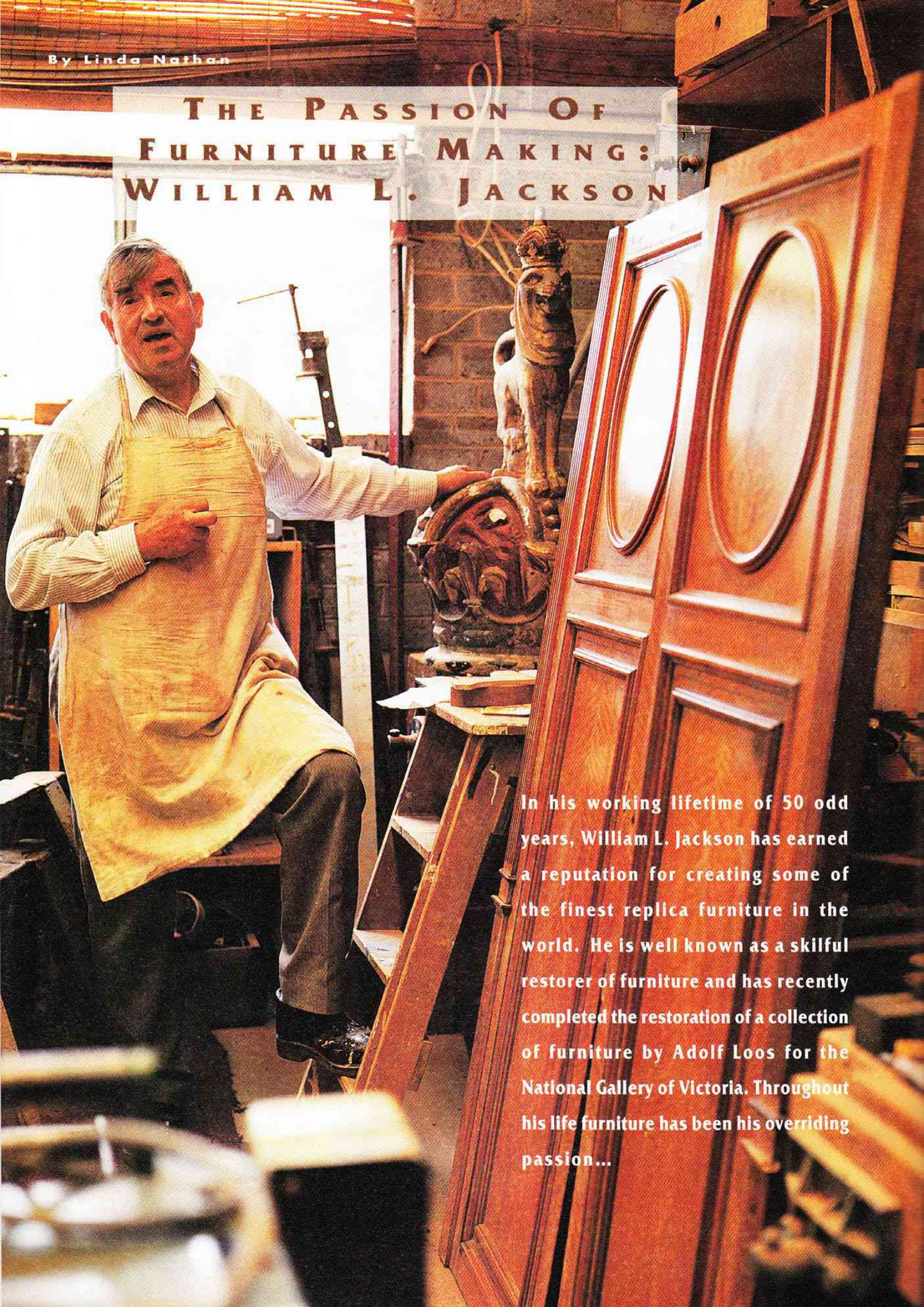
T.U.I.

By Linda Nathan

The Passion Of Furniture Making: William L. Jackson



In his working lifetime of 50 odd years, William L. Jackson has earned a reputation for creating some of the finest replica furniture in the world. He is well known as a skilful restorer of furniture and has recently completed the restoration of a collection of furniture by Adolf Loos for the National Gallery of Victoria. Throughout his life furniture has been his overriding passion...

There is a lifetime of learning involved in the making and restoration of fine reproduction furniture. It helps if you have an encyclopaedic and photographic knowledge of styles, periods, history, materials and technologies, not to mention literature, auction catalogues, names, faces and places. If you are also a raconteur, a mimic, an occasional philosopher and are well-known to museum curators, politicians and public personages alike you might, like Bill Jackson, earn yourself a place in the auction catalogues and stately homes of this planet.

Bill Jackson of W.L. Jackson & Sons has been making, buying, restoring and selling furniture for over forty years. Born in England in 1937, Jackson came to Australia in 1978, a few years after visiting some antipodean cousins. An interesting coincidence set the seal on his resolve to make Australia his home. A friend took him to Kozminskys, well known Melbourne antique dealers. In the window was what appeared to be an 1800s oval table made from satinwood. Jackson recognised the table with its price tag of $2,800 to be one of his own, made three years prior in England and sold to Phillips, Son & Nealie, London auctioneers, for £350. Introducing himself to the owner as the manufacturer of the 'antique', Jackson implausibly reached into the breast pocket of his shirt and produced a photograph of the table in his London workshop in support of his unlikely claim.

Jackson's one man workshop in Melbourne is redolent with potential—chair and table legs, sections of cabinets, odd panels and boards which signpost a random journey through history. A worm-eaten, oak bench seat and side are amongst the oldest, sourced from Elizabethan England circa 1560. Small panels of flame satinwood casually picked up and examined provide an excuse for an impromptu homage to another beloved species: 'West Indian satinwood is the finest timber in the world...'

Other dismembered components become the catalyst for a digression into the origins and magnificence of a species which has been officially extinct since 1870. 'Cuban mahogany was discovered in Cuba by the French. Its earliest documented use was in 1732 and this piece in the Victoria and Albert Museum in London. Its soft pink tones were then a new contrast to the more commonly used 'brown' woods (elm, ash, oak) favoured by furniture makers of that period.' The seemingly unconnected array of components are his treasure: 'I buy these things to restore other pieces of furniture with, but I fall in love with them...'

Each fragment of furniture, bearing

This Cuban mahogany bureau bookcase, replica 1790 with fretted broken pediment and carvings and secret drawers, was commissioned from a picture in an auction catalogue. A Chippendale urn was substituted.

The bottom half of this cabinet was made by W.H. Rocke & Company for the International Melbourne Exhibition in 1861. Bill Jackson designed the top section and spent 1400 hours constructing it as part of an extensive restoration for the National Gallery of Victoria in 1996.

the treasured marks of its own history, awaits a new destiny in his workshop, a kind of recycling which, Jackson remarks, is the purest form there is. The inner surface of an old cupboard side provided just the right grain and colour for a recent restoration of work by Adolf Loos for the National Gallery of Victoria, which now has the largest collection of work by this maker in the world. 'The selection of wood is critical, it must be the right age, the right texture, colour and grain. You can't colour it or it will fade. This is what I do—I get old furniture and I rearrange it.'

Jackson's skill has been employed by major galleries and museums around the world. He has made pieces for the rich, the royal and the famous. In particular, his skills are called upon to make a chair or table to match an original piece. Jackson's work is evident in the new Parliament House in Canberra where he made the main committee room furniture and suites for then Senators Button, Bowen and Childs.

His passion is palpable, and openly voiced in countless declarations: 'I *love* furniture'...'Furniture is my life, my love, it's everything I've ever wanted to do'...'Ask me about furniture and I'll just go on for hours'...'It's like making love for the first time, but with furniture you can repeat the orgasmic experience over and over again. Even when I look at a piece three months after I finished it I still get a prickly sensation on the back of my neck, it's incredible—and it gets better.' Jackson's unabated ardour is somewhat over-the-top and listening to him is at the same time inspiring and exhausting.

The making process is intuitive for him. 'It's like having a baby, it takes place in the body, but somehow you're not consciously responsible. The concept starts in your head and goes down to your hands. You reach for the right tool...and there it is before you. When I start a new piece I think about it for a week, look at photos or drawings, choose the timber. Then I have a cup of tea and get my ruler out. All I need do is to set the height, the width, depth and length,' he says, presumably meaning the rest is mentally extrapolated. 'If you chopped off my hands and blindfolded me I could still produce a cabinet.'

Once you start talking replica (as distinct from reproduction) furniture you enter the realm of quantifiable facts: the history and details of the original design, the origin and name of each piece of timber and material used, in particular, the number of hours spent. Appraising an antique is a refined art, carried out by employing the senses and all one's intuitive and possibly psychic powers. 'Don't approach a piece with the question "is it right?", but ask "what's wrong with it?" 'You don't have to touch it, you can smell if it's real. Open the drawers—smell inside. You can smell a gentleman's snuff, the perfume of a lady's lingerie, tobacco. If it's been restored you can smell the linseed oil and wax. If you're still doubtful, leave it closed up in a room for two to three days. When you come back you can actually see the atmosphere around the table...'

When Bill Jackson was three or four years old, his father, the proprietor of a riding school, took him into a neighbouring joinery. Early impressions can be strong and lasting. 'The smell of the wood and the sights and sounds of sawing and hammering hit me between

The main committee room in Canberra's new Parliament House features cabinetry by W.L. Jackson & Sons.

A fully tilting table made of mahogany, inlaid with satinwood, amboyna and kingwood and sold to Kozminskys in 1978. The tilting mechanism employs a purpose-built wooden 'knuckle'.

the eyes—I wanted to go back there again and again to watch. I was lucky, my dream in life kept on', he says.

He was 'no good at school', and consequently ran away from it when he was 12 years old. He was apprenticed at the age of twelve to Amos & Reynolds, Royal Embalmers & Cabinetmakers, working even from that tender age 70 hours a week for the ensuing six years. At14 years of age he made the lid of George VI's burial casket. After his apprenticeship he served two years compulsory national service, and thereafter had his own business.

In Australia he has had antique shops in High Street, Armadale, Riversdale Road, Camberwell, both in Victoria and, at times, employed up to 12 staff. Four years ago, however, he made a decision to free himself of the burden of management and work on his own.

The maker of replica furniture can tend to submerge his own identity in the quest for veracity of style and 'authenticity'. Bill Jackson has not kept many images of the 600 or 700 pieces he reckons he has made in his working lifetime of fifty years or so. Most of his pieces contain however a hidden record of their maker's identity. The message is not for future owners of the piece, but perhaps rather for future restorers or cabinetmakers who, like Jackson, will delight in appreciating the intrinsic worth of a piece and allowing each piece of carefully selected timber to live on. □

By Anton Gerner

LARGE SCALE DESIGN

The description 'wall unit' is often synonymous with a monstrous conglomerate of assorted compartments and shelves. No matter how carefully designed or functional, the end result is often a two-dimensional 'mapped out on a grid' look. Anton Gerner has used a 'breakfront' side elevation and low key design details to create an entertainment storage unit with a more dimensioned and stylish look. Here he describes how he avoided some of the pitfalls which large scale work can bring.

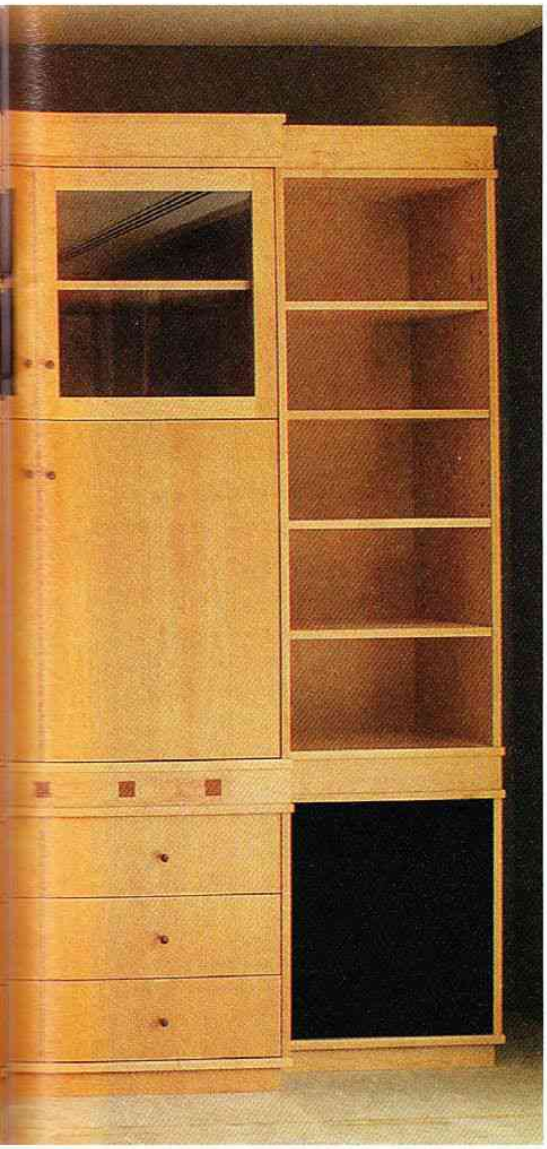
My commission was to design and make a large entertainment unit for a house in the process of being built. The unit was to span a wall 5.5 metres long and extend from floor to ceiling however the brief was for a piece of furniture rather than a huge built-in wall of timber. Much of the design process was concerned with softening the look of the piece and creating elements of visual interest which would over-ride its dominant feature of size.

Over six months, around 200 hours were spent working on the project. Such a time frame is not unusual for a job of this complexity where large chunks of time can be spent simply 'getting ready' to work. During the stages of design and construction I not only worked with the client, but also with the architect, construction manager, site foreman, electrician, veneer supplier, veneer layer, glass supplier, hardware supplier and woodturner. Most importantly, on a 'big' job it is necessary to plan carefully at every step of the way to avoid 'big' mistakes.

Developing The Design

Initially I made contact with the client at a design trade show. I find that this type of event builds my business profile even though it doesn't generate immediate sales; the benefits seem to come in the long term.

At the first meeting with the client and architect I presented my folio which contains professionally photographed images of recent work. The client had already prepared a detailed list of dimensions and allowances of the various visual and sound system components



which included CDs, tapes and assorted essentials. These functional requirements influenced the internal layout, however the overall design, detailing and construction was left completely to me.

A square inlay detail, something I use regularly, was suggested as a decorative motif and various options for the use of this detail were discussed. It is easy to overdo the use of some decorative details and so I eventually settled on using the squares only on a horizontal rail which was designed primarily as a decorative panel.

I then started work on several design concepts, freehand sketching different combinations of the layout and working on an overall look. Once I was fairly satisfied I progressed to drawing board plans and costings for three of what I thought were the best solutions. The client selected one of the concepts and, upon receipt of the deposit (I normally request 40% up front), I developed the design over the next month until both the client and I were happy. We both made several compromises, most of which centred on the external proportioning of some of the cabinets.

Originally the client wanted the unit to span the entire 5.5 metre wall. I suggested that the unit be brought in from the walls and not extended it right up to the ceiling. This would make it appear more like a free standing unit, as per the original brief. I also felt that graduating the depth of the carcase units would create a more balanced look. Instead of a timber back on the unit we decided the brick wall behind the unit would be rendered to create a contrast of colour and texture, thereby 'lifting' the unit from the wall.

Veneered MDF (medium density fibreboard) was chosen as the main material for reasons of economy, stability and consistent matching of timber colour and grain. After preparation and presentation of several samples, American rock maple was selected for its light colour and refined grain. The use of a dark or highly figured timber on such a large scale would have made the unit look too heavy.

Preparation

I personally selected all the rock maple veneer at the veneer merchants and arranged for pressing onto 19 mm MDF. This had to be arranged a month in advance, as did the matching timber for the 5mm solid edging, along with other detailing and inlay strips. Hardware was also purchased ahead of time to ensure availability and to check on the allowances required.

Once the design was finalised, it was necessary to make detailed drawings for the preparation of cutting lists for the 18 sheets of veneered MDF. This was to ensure maximum use of materials, and to doublecheck on correct measurements and allowances for the contents of the unit, the cabling and the clearances for the retractable mechanisms. Three *Häfele* sliding mechanisms, concealed by removeable panels, were used for the doors covering the TV and hi-fi equipment.

Construction

The next step was to cut and machine to size the veneered panels, solid timber edgings and detailings. Each panel had to be carefully numbered to avoid mix-ups. The continuity and matching of grain was intrinsic to the design, so time was spent selecting and earmarking various sheets for different positions.

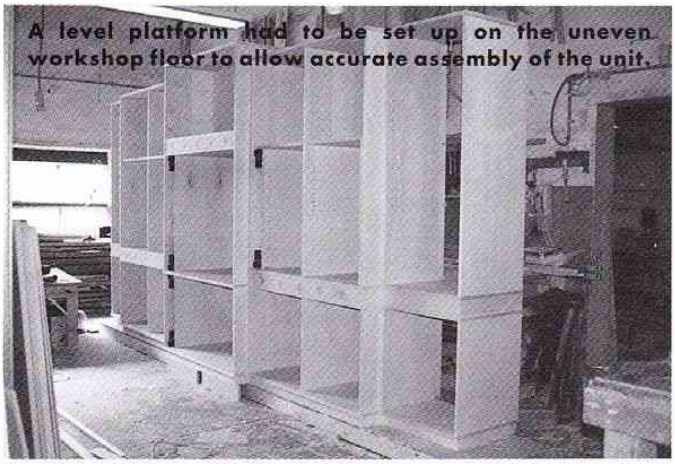
Solid edgings were glued on and trimmed back with a laminate trimmer, a slow process which took several days. I never use hot-melt or iron-on veneer edging on any external edges because I don't believe it lasts well over the long haul. Adjustable shelf pin holes were drilled to accept brass sleeves, rebates for backings cut, holes for cable access drilled, all before the carcases were assembled. Everything was sanded in the flat form prior to assembly.

For ease of construction and transportation the unit was designed and built in a modular form, each unit being biscuit joined and screwed together. The assembly was therefore quite easy.

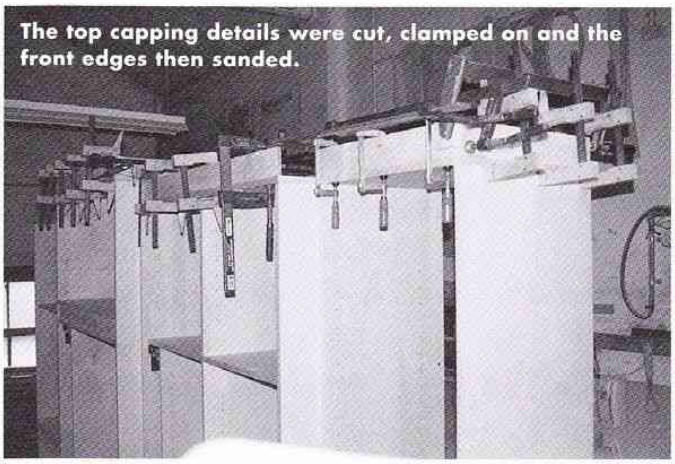
Once all the carcases were assembled, the whole unit was set up on a level platform (which had to be first built on my uneven workshop floor)—this allowed me to cut doors and drawers accurately. The carcases were attached to the plinth and screwed together in concealed locations.

I next tackled the top capping details. These were cut, clamped on and the front edges then sanded. This work was quite awkward as it had to be performed on a ladder.

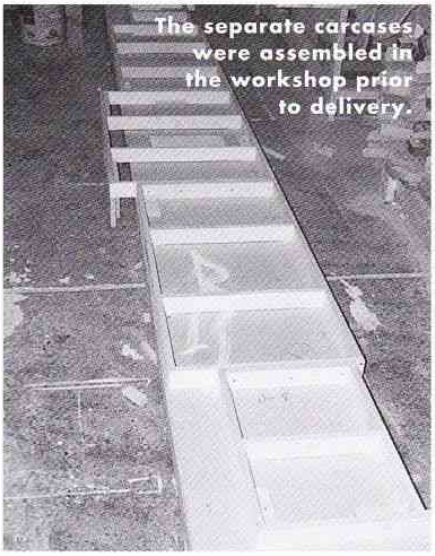
After the carcase was complete all the doors and drawer fronts were cut, edged and fitted. The drawers, which run on heavy duty steel runners, were made from 12mm veneered MDF. As there were twelve drawers to make in



A level platform had to be set up on the uneven workshop floor to allow accurate assembly of the unit.



The top capping details were cut, clamped on and the front edges then sanded.



The separate carcases were assembled in the workshop prior to delivery.

the interest of speed I decided to use a combination of biscuits and screws to assemble them. The biscuits aligned everything and the screws alleviated the need for clamps. Several drawers contained custom made dividers for CDs and videos.

The frames for the glass doors were mortised and tenoned together, rebated and glazed. Simple frames were made and covered with black speaker cloth—these would conceal the built-in speakers. Finally the backings were attached and each door hinged and adjusted.

Finishing

Only when I was happy with everything was the unit disassembled ready for finishing. A major point with a unit of this size is the large surface area which has to be sanded and finished. This was the stage of construction where I greatly underestimated the time required. The sanding of the thirty shelves alone took around eight hours.

Because I didn't have enough space in my spray booth I worked in batches, spraying all the doors, then all the shelves, and so on. While one batch was drying the preceding was sanded back and prepared for the next coat. The entire unit was spray finished with three coats of single pack lacquer then rubbed back with steel wool and wax. The spraying took three days while another day was spent on the final polishing. Although most of the carcases were sprayed prior to assembly, this was not possible for some sections, which had to be finished on site.

The drawer runners and drawers were next installed and the fronts attached. All sliding mechanisms and doors were re-fitted and the door stops attached. The specially turned knobs in contrasting American cherry were fitted to the doors and drawers. Some further final detailing also took place such as colour matching the odd panel here and there.

Installation

The installation was straightforward, as I had already set it up once in the workshop. Because the unit didn't have to fit into a tight space it was really just a matter of reassembling it on site. In fact it took longer to pack and unload the truck and carry the unit into the house, than to actually install it. All the doors required minor adjustment and the whole unit was given a final wax and polish.

Everything went smoothly apart from the phone call I received later that day from the builder at the site who cheerfully commented on how the glass doors had the knobs at the top, a somewhat strange position. Fortunately this was easily fixed—I had the doors upside down! The client was very happy and has since commissioned several other pieces. □

By Robert Manhal

ELEMENTS OF DESIGN


Robert Manhal

Once you have mastered the basic techniques of the lathe you can theoretically create an almost limitless range of shapes and textures. Whether you are creating flat surfaces which incorporate inlay or simple relief, or turning complex, large and deep hollow forms there are several elements of design which I feel are of particular relevance to the woodturner.

Shape is the outline or silhouette of an object, or how a specific area has been enclosed or defined. You can draw plans and elevations of what you would like your work to look like when completed, or use the natural edge or exterior of the timber. You can create anything from simple 'classic' forms to the most bizarre and irregular shapes.

Line. Within each piece of timber there are grain markings which can be incorporated into your design.

Above: My bowl 'units' interlock to form a unified piece. Incorporating more than one part as this blackwood and Huon pine piece does is really challenging and a lot of fun to do. Colour, geometric shapes, sharp edges and clearly defined spaces add contrast. Opposite top: The blanks for the interlocking banksia platters were cut and mounted so the grain would run the same way.

Techniques such as inlaying, applying paint, staining, ebonising, creating different levels or carving will also add to the element of line.

Point can give visual focus to a section or part of the woodturning. You can inlay, paint, drill and combine other materials and parts to form a focal point.

Tone is perceptible in either the natural colouring of the timber used (as in the light sapwood to dark, rich brown in blackwood or in highly figured timbers) or by using dyes or stains.

Colour exists within all materials used. Again we can add to what is already there by burnishing, dyeing, painting, or combining different woods and other materials.

Texture is an abundant and unique quality of timbers. Leaving natural edges and incorporating defects or features within the timber is a tactile and exciting way of appreciating individual samples of timber and species. Highlighting grain features and structure creates a visual texture.

Putting all of these elements together to create a harmonious and visually pleasing form is a highly subjective process. Achieving balance is simple if your form is circular and the parts correspond in size, shape and position on either side of an imaginary centre line. Shapes don't, however, have to be round or simple. Irregular shapes create different visual solutions—cutting out areas, turning asymmetrical or off-centre forms and lines can also create a different kind of balance. When these elements of design are combined with the wild cards of spontaneity, experimentation and even 'error' you can create a piece of work that is unique and, by nature, part of you.

I develop my ideas on paper. Compasses, rulers, math-o-mats and other instruments will help you draw. Keep

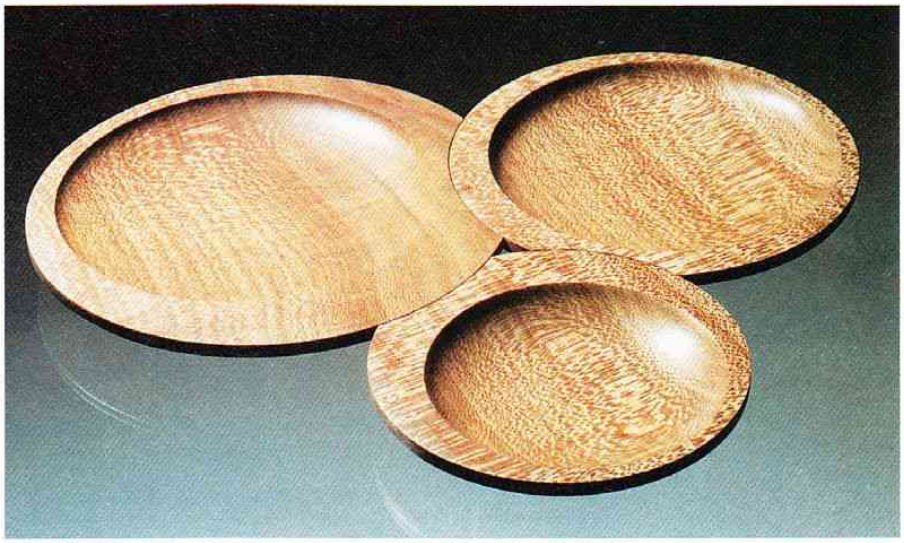
your pencil sharp for crisp and clearly defined lines. Even if your drawing skills are unrefined to start with, practice will eventually allow you to express your ideas on paper. There are many excellent text books on the subject. If you need inspiration, look around you. Natural forms such as fruit, flowers, shells, trees, rocks, animals, clouds and the innumerable manmade objects around us have forms that you can change or modify to make your own. Analyse the function of your object. Will it exist to be a decorative or sculptural piece, or will it have to hold something.

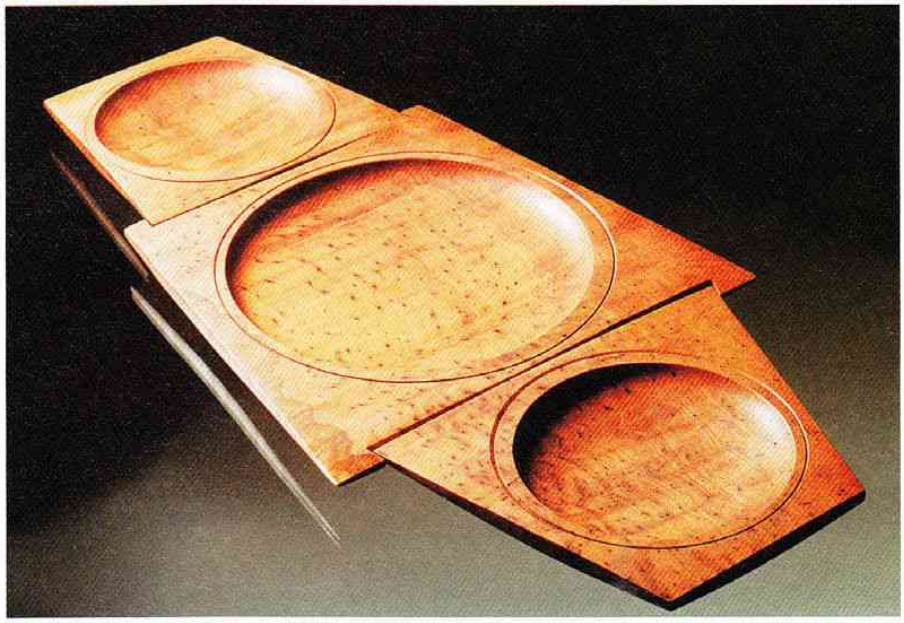
Once I have some ideas on paper I like to select one and develop it by trying out lots of variations. Your idea may only form the basis of your turning—quite often the magical qualities of a piece of timber will prompt you to change your original plan. Every piece of wood has unique qualities of colour, grain, texture and smell that you can unlock. Highly figured timbers are beautiful, but they aren't essential for visual interest. Maximise the potential of each piece of timber through the application of your ideas and design skills.

I like the idea of different planes or facets, irregular shapes and angles, and working with negative spaces by cutting out sections of a piece. One theme I have spent considerable time experimenting with is the linking of one or more turnings by cutting away areas to receive or interconnect the 'units' of a piece. I have combined units of varying shapes and timber species, running the grain tangentially or in the same direction.

Where I have started out with a particularly beautiful piece of timber I have experimented with producing a series of turnings which interconnect physically and visually. I have attempted to do this by preserving the direction of the grain, and in some cases the exterior line of the flitch (see AWR#15).

While the unique qualities of each piece of timber have a strong influence on the starting and finishing point of all my turnings, the first stage for me is always accomplished as a conscious process of design. □





'Triad', redgum, 690 x 330 x 25mm. The simple lines of each platter allow the borer holes and grain irregularities of the timber to feature.

I wanted to make a series of platters using some very nice local banksia and spent considerable time sketching numerous variations on a basic idea. Both plan and side views were developed with due reference to the grain direction and markings. The banksia platter 410 x 390 x 30mm is shown above.

By Terry Martin

THE BIG BURL BOAT

Last issue we reported on the harvesting of a large burl for a very unusual community project which took place at the Deloraine Craft Fair in 1997

A huge eucalyptus burl, weighing two tonnes, was found in the bush where it had been left after logging operations. With help from Forestry Tasmania it was salvaged and taken to Deloraine where preliminary hollowing was done with a chainsaw. At the end of October it was set up among the craft fair tents and sheds at the Deloraine showgrounds for the major work to be completed.

Incorporating the sweeping natural lines of the burl, project coordinator Paul Noordanus designed a kind of Viking vessel, then spent the rest of the show explaining, 'No, I'm not a Viking. I come from Holland.' He incorporated a carved stern post, steering oar, sweeping bow-struts and a mast topped with a very unlikely sail. The first sail was made from beautifully thin rough-sawn hardwood that was allowed to warp as it dried in the sun. The local sawmillers really enjoyed setting up to cut such a thin flitch, but everyone was disappointed to discover that it couldn't be used. Sails have a tendency to catch the wind after all and this boat is not about to move under wind power, so the sail had to go. A sail was finally made of chicken wire to let the wind through and an abstract shield was hammered out of scrap metal and mounted on the front.

During the show the carving was done by Paul and two other Tasmanian woodworkers, Paul Cobbing and Andrew Hepburn. Most of the hard work was done with a *Rotary Chisel* mounted on an angle grinder. For two days they were bombarded with noise and chips as they worked in shifts to refine the interior of the burl. Next it was sanded using a high-powered industrial rotary sander. The fittings were also carved using the *Rotary Chisel* and the mast was a large, straight sapling.

There had been a lot of publicity and people constantly passed by from the many venues scattered throughout the town to see what progress had been made on the boat. There were key moments, such as the fitting of the stern post, shipping of the oar and the final proud stepping of the mast. When the work was complete the carvers climbed aboard and drank beer for the rest of the day—a well deserved reward.

As it neared completion, everyone wanted to know what was going to happen to the *Big Burl Boat*. With foresight, Rotary and the local council cooperated to display in the town where it will remain in the future as a symbol of cooperation and community effort. In the words of carver Paul Cobbing, 'I don't mind giving up my time. My kids can look at this in the future and say "My Dad helped make that".' Significantly, one of the questions most commonly asked by the spectators was 'What's planned for next year?'

Advertiser Index

Dr Eugene Dimitriadis

SAFETY PART V: WOOD—HANDLE WITH CARE

Last issue we detailed some of the hazards of wood dust and looked at some of the safeguards available on the market. As well as being a physical irritant, wood dust and sap can contain chemicals which are toxic. Dr Eugene Dimitriadis describes how toxic chemicals may be released from wood and the sort of reactions which can occur.

Timber can without doubt be toxic —although the degree to which and the nature of the reaction produced is not easy to quantify. Exposure to certain chemicals which may be present in wood is an area of safety which the woodworker must not overlook.

Sneezes, coughs and runny noses are the natural defence mechanisms of the body against physically irritating substances. When contact with wood or inhalation of wood dust leads to reactions like wheezing, asthma, severe coughing, bloody sputum, a choking sensation, dermatitis, skin and eye redness and swelling, a visit to the doctor is essential. If medication or hospitalisation follows the warning is loud and clear. Mucous membranes and 'wet' areas (lips, nose) as well as the more delicate skin of the armpits and groin may also react with redness, swelling and itchiness. If you have a prior history of asthma, allergic reactions, hay fever, eczema or psoriasis you should be especially cautious.

If you have become sensitised to a particular timber you must avoid using it—your life may even depend on it. In this case it is not just the physical irritation of the wood dust or sap but the chemicals contained within. These chemicals can be directly absorbed through thin skin and the mucous layer. In some cases just one dust particle of a particular species can trigger an allergic reaction. There are many cases of woodworkers becoming sensitised to certain species such as blackwood, however some individuals will react to species which the majority of people have no trouble working with.

Wood chemicals are produced as metabolic by-products of tree growth. They are stored in wood cells where some confer protective properties for the plant, or useful properties for us like smell, colour, strength, anti-fungal or bacterial properties. In some cases they will enhance the durability of the timber. Paradoxically, many plant extracts which are toxic have great value in medical treatments. In fact, most toxic materials have medicinal applications in the right dose.

Toxic and useful materials are usually extracted from the leaves, bark, twigs, sap and roots as they are easier to access and grind, and often have higher concentrations of chemicals. The wood may or may not contain the same chemicals as these parts, however in my experience there is usually a relationship between some classes of chemicals found in the leaves and twigs, and those in the wood. The woody parts of the tree may reveal unique chemicals.

When wood chemicals evaporate in raised temperatures they constitute volatile materials which may be absorbed through the nose and lungs. High speed machining and/or blunt tooling will produce heat at the wood surface which may cause the release of volatiles which cannot be filtered out by dust extractors or personal respirators. Dust masks which contain activated carbon or charcoal will absorb volatile materials such as those produced by western red cedar, a species notorious for causing medical problems. Australian cypress pine and camphor laurel also produce volatile chemicals.

Timber may also contain toxic additives. Urea formaldehyde bonding resin is used in the manufacture of panel products, while CCA and creosote are used to preserve structural timbers and 'treated pine'. Chlorophenate was once commonly used as a timber preservative for posts and sleepers. Lead, a cumulative poison, was once used extensively in oil-based paints. Care should be exercised when handling or machining timber which may contain any of these chemicals. Treated timbers should never be burnt, especially not in the barbecue.

Working with wet wood can reduce the hazard of dust, however the chance of contact with an irritating sap can be increased. Trees and shrubs with milky sap (for example frangipani and oleander) should be treated with great caution. Some plants concentrate the chemicals in the bark (eg tropical sassafras species, poison walnut, conkerberry) and care must be taken with these woods if you are cutting, milling or working with whole logs. The Aborigines identified two particular trees of *Excoecaria* sp. as 'blind-your-eye' and 'river poison tree'. The milky sap of these trees can cause temporary blindness if it finds its way (for example while chopping) into the eye, and can also cause sore throats, headaches and blistering of the skin.

An imported species from Central America called 'poisonwood' or

Timbers Known To Produce Reactions In Some Individuals

Native Species

Common Name	Botanical Name	Some Recorded Reactions
Alpine ash	*Eucalyptus delagatensis*	Irritation to mucous membranes
Blackbean	*Castanospermum australe*	Irritation of mucous membranes, nose, mouth, throat, genitals, armpits
Blackwood	*Acacia melanoxylon*	Dermatitis and skin reactions
Blue gum (Tasmanian)	*Eucalyptus globulus*	Dermatitis
Brigalow	*Acacia harpophylla*	'Brigalow itch' irritation to nose, eyes, throat, groin (wood & bark dust)
Camphor laurel	*Cinnamomum camphora*	Can cause dermatitis and shortness of breath
Coolibah (northern)	*Eucalyptus microtheca*	Skin irritation (bark & wood dust)
Cooliman tree, shitwood	*Gyrocarpus americanus*	Can cause blindness
Grass tree/blackboy	*Xanthorrhoea sp.*	Dermatitis and skin reactions
Grey box	*Eucalyptus microcarpa*	Eczema, irritation to mucous membranes
Grey myrtle	*Diospyros sp*	Causes skin eruptions (especially from splinters)
Gutta percha	*Excoecaria parvifolia*	Temporary blindness from contact with milky sap
Jarrah	*Eucalyptus marginata*	Irritation to nose, throat, eyes
Lemon scented gum	*Corymbia citriodora*	Dermatitis
Messmate	*Eucalyptus obliqua*	Dermatitis, asthma, sneezing
Miva mahogany	*Dysoxylum fraserianum*	Nosebleeds, headaches, inflammation of nose and eyes
Mountain ash	*Eucalyptus regnans*	Irritation to nose and throat, eyes and dermatitis
Mulga	*Acacia aneura*	Headache, vomiting, irritation
Nthn silky oak	*Cardwellia sublimis*	Green wood and dust can cause dermatitis
Poison walnut	*Endiandra pleurosperma*	Bark very irritating, breathing problems, vomiting & giddiness
Qld maple	*Flindersia brayleyana*	Dermatitis
Red bloodwoods	*Corymbia gummifera*	Irritation to eyes and skin
Red cedar	*Toona ciliata*	Earache, giddiness, stomach cramp, asthma
Red silky oak	*Stenocarpus salignus*	Irritation to mucous membranes
Red siris/ Mackay cedar	*Albizia toona*	Irritation to eyes, nose, throat, sneezing
Silky beech	*Citronella moorei*	Irritation to nose and eyes
Silver silkwood	*Flindersia accuminata*	Irritation to nose and throat
Southern silky oak	*Grevillea robusta*	Skin eruptions, blistering eyelid irritation and dermatitis
Spotted gum	*Corymbia maculata*	Dermatitis
Turpentine	*Syncarpia glomilifera*	Inflammation of mucous membranes
White cedar	*Melia azedarach*	Nosebleed, dermatitis, headache
White cypress pine	*Callitris glaucophylla* *C. intermedia, C. polycarpa*	Dermatitis, asthma, nasal cancer, irritation of mucous membranes

Non-native species

African blackwood	*Dalbergia melanoxylon*	Acute dermatitis, sneezing conjunctivitis
Cocobolo/kingwood/rosewoods	*Dalbergia sp.*	Acute dermatitis, sneezing conjunctivitis
Douglas fir (oregon)	*Pseudosuga menziesii*	Dermatitis, giddiness, vomiting, 'mahogany cough'
Ebonies	*Diospyros sp.*	Acute dermatitis, sneezing, conjunctivitis
European beech	*Fagus sylvatica*	Nasal and sinus cancer
European oaks	*Quercus sp*	Dermatitis, sneezing, nasal cancer
Kwila	*Instia bijuga, I. palembanica*	Irritation to nose and throat
Meranti	*Shorea sp*	Dermatitis, irritation of mucous membranes
NG rosewood/padauk	*Pterocarpus sp*	Dermatitis, asthma
Nyatoh	*Palaquium sp, Payene sp*	Irritation to mucous membranes
Padauk	*Pterocarpus sp*	Dermatitis, asthma, irritation to mucous membranes
Redwood (USA)	*Sequioa sempervirens*	Dermatitis, asthma
Rimu (NZ)	*Dacrydium cupressinum*	Irritation to nose and eyes
Slash pine	*Pinus elliottii*	Dermatitis
Teak	*Tectonia grandis*	Dermatitis, conjunctivitis, over sensitivity to light, swollen scrotum, nausea
Walnuts	*Juglans sp.*	Nasal cancer, dermatitis and irritation of mucous membranes
Western red cedar	*Thuja plicata*	Dermatitis, asthma, nasal cancer, nausea, nose bleeds and giddiness
Yews	*Taxus sp.*	Headache, lung congestion, nausea, fainting, visual dis turbances, irritation of alimentary canal

Warning: This list is not exhaustive, and care should be taken in handling and working with all unfamiliar timbers, whether wet or dry.

WOOD DIARY

1998

5 Feb-22 March
Spirit of Tree: Yoshi Noai
Brisbane City Gallery
(07) 3403 4355

2-5 March, 1998
Int. Furniture Fair Singapore 1998
(with 15th ASEAN Furniture Show)
Singapore International Convention & Exhibition Centre, Suntec City
(65) 568 2626 Fax (65) 568 2922

18-20 March, 1998
Ornamental Turning Group of Aust.
1st National Workshop/Seminar
Oyster Bay, Sydney
(02) 9727 2116, (047) 77 5021,
(03) 5258 1797

27-28 March
Vic Wood Masterclass & Demonstrations
The Turnery, Marion SA
(08) 8358 1400

27-29 March
Timber & Woodworking Show
Claremont Showgrounds, Perth
(02) 9712 5623 Fax (02) 9712 5628

30 April—3 May
Interior Designex
Sydney Convention & Exhibition Centre
Tel (03) 9818 8553 Fax (03) 9819 0211

30 April—May 2
Techni Bois '98
& Int. Wood Components Fair
Quebec City, Canada
Tel: 418-845-8247 Fax: 418-845-8516

9-10 May
Australian Bush Festival
Rockhampton Heritage Village
(07) 4936 3576

16-19 May, 1998
Int. Contemporary Furniture Fair
Jacob K. Javits Convention Center, New York
Tel (212) 897 5776 Fax (212) 879 8093

2-4 May
From Chainsaw To Fine Furniture Expo
Maleny Show Pavilions & Grounds
(07) 5494 3151

20-24 May, 1998
Xylexpo:16th World Exhibition for Woodworking Technology
Interbimall/Xylexpo at http://www.acimall.com
Email: info@acimall.com

22-24 May
Timber & Working With Wood Show
Brisbane RNAIA Showgrounds
Tel (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

17 July-23 August
10th Anniversary National Dame Mary Durack Outback Crafts Awards (entries due June 12)
Tel (07) 3221 5300 Fax (07) 3221 4684

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

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

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

9-11 October
Timber & Woodworking Show
Melbourne Exhibition Centre
Tel (02) 9712 5623 Fax (02) 9712 5628

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

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

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

Listings in Wood Diary are free, send details to:
Wood Diary
Australian Wood Review
PO Box 4336
Loganholme D.C. Qld 4129

Honduras walnut (*Metopium* sp) is so-called because of its irritating and toxic sap. The wood of this tree is not toxic, or at least not to a significant degree. Cooktown ironwood or red ironwood (*Erythrophleum chlorostachys*) is also called 'camel poison tree'—all parts, especially the leaves, twigs and underbark contain toxic alkaloids. In one recorded case hungry cattle held in a truck under an ironwood tree died after digesting just a handful of leaves. While there is no evidence that the wood of this species is toxic, as with all durable woods, it should be handled and worked with caution.

Woods contaminated with fungi (such as spalted timbers like sassafras or timber sections with hollow centres with a mushroom-like odour or with evidence of mouldy mycelia or strands) will release spores into the atmosphere when disturbed. There have been cases of fungus growing in the lungs. Your lungs, skin, eyes and mucous membranes should accordingly be well protected. On the preceding page is a list of timber species which have been known to cause reactions.

Eugene Dimitriadis has a PhD in the chemistry of wood and has specifically researched the medical, toxic and irritating properties of Australian woody plants. He is not a medical practitioner. The information provided in this article is not exhaustive and medical attention should be sought for any conditions and reactions experienced by woodworkers.

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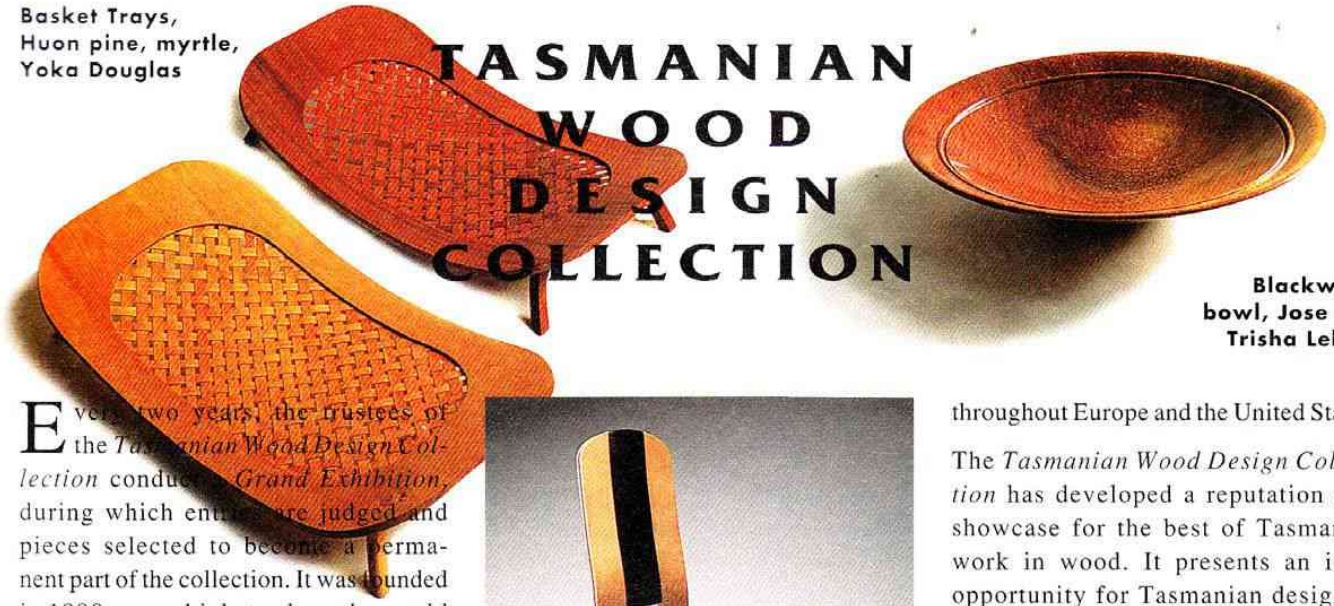
Personal experience and communication with researchers and woodworkers.

By Samantha Meyer

TASMANIAN WOOD DESIGN COLLECTION



Basket Trays, Huon pine, myrtle, Yoka Douglas

Blackwood bowl, Jose and Trisha Lehete

Every two years, the trustees of the *Tasmanian Wood Design Collection* conduct a *Grand Exhibition*, during which entries are judged and pieces selected to become a permanent part of the collection. It was founded in 1990 as a vehicle to show the world the excellence of Tasmanian materials and design. After eight years building the reputation of the collection, the world is now its stage.

Valued at around $100,000, this is arguably the highest quality collection of contemporary wood design ever seen in Australia. A further $10,000 was spent on acquiring new pieces during the recent November exhibition, taking the total number of pieces included to thirty-two.

The biennial *Grand Exhibition* attracts 'names' such as Kevin Perkins, whose work has become widely known throughout Australia, but the aim is also to foster unknown talent. 'Particularly with last year's entries, we've seen a lot of the students, first time exhibitors, doing really well. That would hit on the head any claim that we're just there to support the established designers', said Peter Costello, wood designer and collection board member.

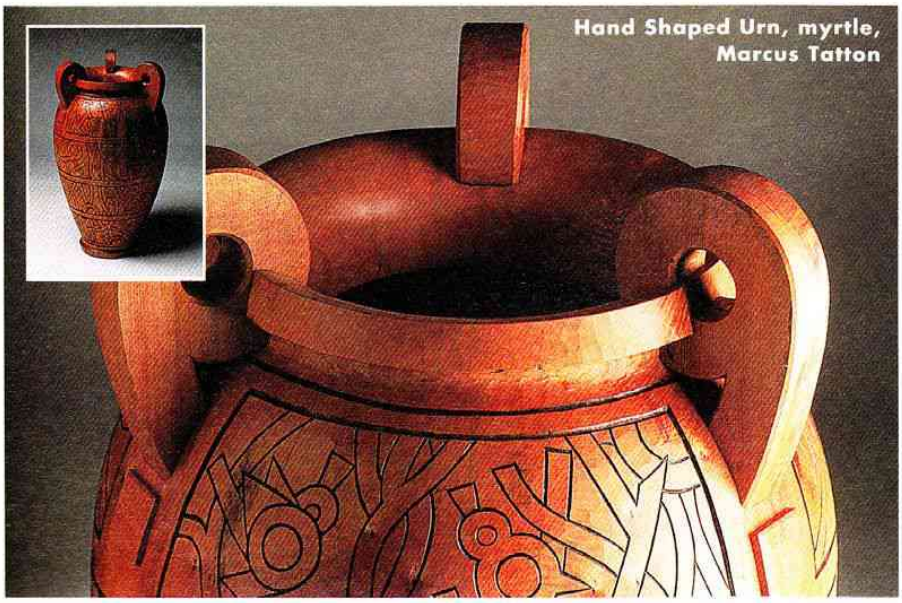
'Riptide Suite' chair, Huon pine veneer over moulded ply, leather, by John Smith

The chief selector at the recent exhibition was Fred Baier, whose experience in timber design, teaching, craft creation and exhibition has extended throughout Europe and the United States.

The *Tasmanian Wood Design Collection* has developed a reputation as a showcase for the best of Tasmanian work in wood. It presents an ideal opportunity for Tasmanian designers and woodworkers to gain exposure throughout Australia and overseas.

It's a display vehicle not just for Tasmanian design, but for the State's remarkable native timbers, such as myrtle, sassafras, blackwood, celery top pine, eucalyptus and Huon pine. These timbers are represented in the collection's new acquisitions.

The new pieces were chosen just two weeks before a selection of 21 pieces from 1991-1997 left to tour Germany, Finland and Sweden. This follows winning best exhibit at the International Contemporary Furniture Fair in New York in 1996. The exhibition will return to Australia and be shown at the newly opened Customs House Gallery, Circular Quay, Sydney from October 23 until December 6.



Hand Shaped Urn, myrtle, Marcus Tatton

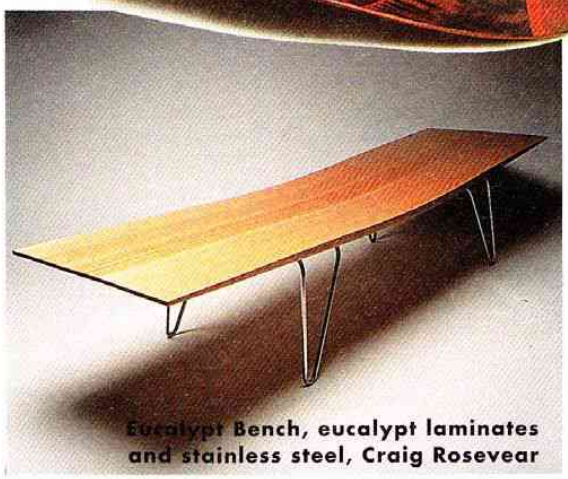
Tray Table, Myrtle, Bruce Goodsir

Bowl, tiger grain myrtle,
Kevin Perkins

Bowl On Stand,
myrtle, perspex,
Dave Humphries

Peter Costello first exhibited in the Collection in 1991. While he continues to exhibit, his involvement with the *Tasmanian Wood Design Collection* has evolved further, helping to promote the work of other designers.

One of his roles is to accompany the collection on the current tour of some of Europe's design centres—Ulm, Gothenburg and Helsinki. 'Making connections between Tasmanian designers and outlets overseas is very important. A lot of interesting design doesn't come only from the centres of world design and I think the collection has something to teach those places' he said. Costello says for a ridiculously small population, Tasmania has a great number of really fine designers and there's a need to show the rest of the world what is going on in this tiny place.



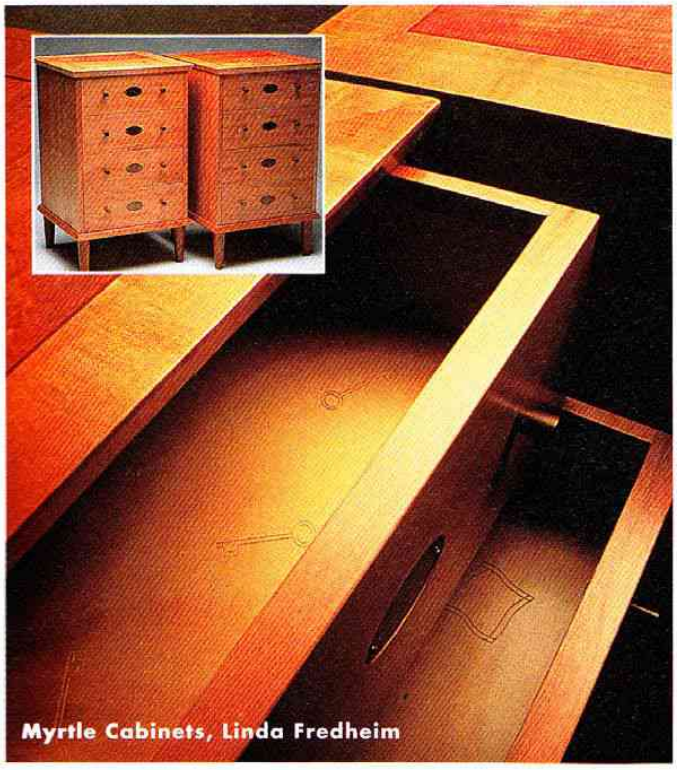
Eucalypt Bench, eucalypt laminates
and stainless steel, Craig Rosevear

While Tasmanian designers continue their struggle for recognition at home and abroad, Peter Costello says the collection is going in to bat for them anywhere a perceived market exists.

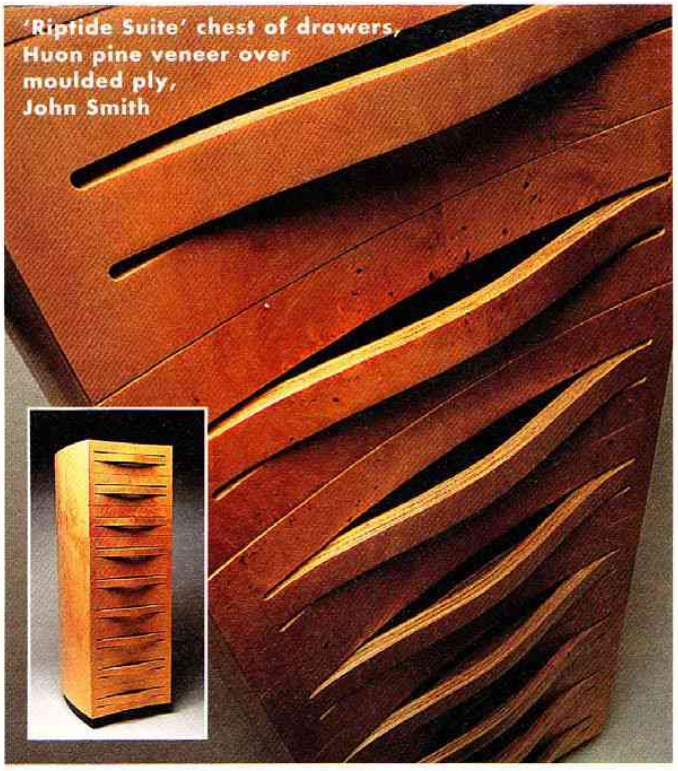
'On its journeys away from home, whether it be interstate or overseas, the collection draws applause the like of which it does not know in Tasmania'.

In Australia it's known about, but the number of people really interested in this sort of thing is not great. Australians buy these pieces, but they don't buy enough. It's very easy for the local population to not appreciate the quality of this work, but that happens everywhere. It's difficult to be a prophet in your own country and the hardest thing is to make a name for yourself at home'.

The tour is costing approximately $60,000 and has been funded by the Australia Council, Arts Tasmania, Tourism Tasmania and Tasmania Development and Resources.



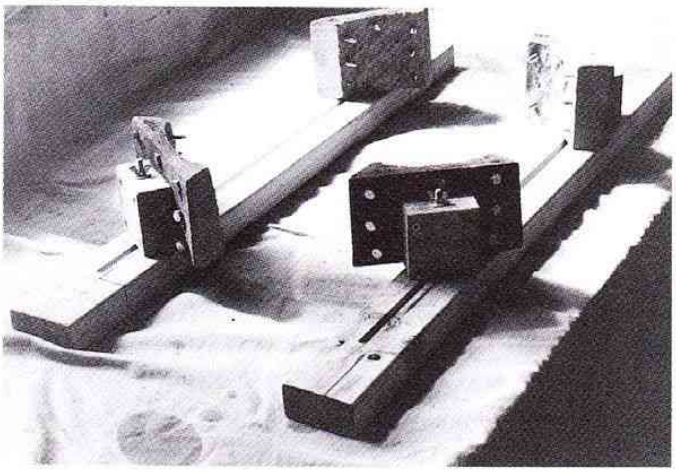
Myrtle Cabinets, Linda Fredheim



'Riptide Suite' chest of drawers,
Huon pine veneer over
moulded ply,
John Smith

By Christian Bass

'BURL HOLDER'



Left: The jig in action—a truck-strap with a ratchet provides additional tensioning. F-clamps hold the runners firm against the workbench, although G-clamps would be better. Right: The 'Jaw-blocks' are mounted on runners.

Some weeks ago I took a trip down the New South Wales south coast in search of raw stock for my newly acquired power woodcarver. After somewhat of a search I arrived at a supplier of firewood who showed me a modest collection of bloodwood burls he'd put aside for random sales such as this.

We began talking and I described to him why I needed them. He suddenly and excitedly told me that he too had used a powercarver on small workpieces but these days was a bit too afraid to use it because of the obvious safety aspects. He said to me that he usually tried to hold the burl in one arm while awkwardly using the carver in the other. I was surprised that he still had his left arm below the elbow! I departed with burls in my boot and the question in my head of how, before even turning on the power, I could hold these in a stable and safe way atop the workbench.

During the trip home I tried to come up with the most effective and economical way to assemble a jig which would be secure no matter how large or small the burl or workpiece, while still allowing universal lateral adjustment.

The jig I eventually invented clamps easily by each end to the bench-top and is solid enough to hold burls of up to approximately 600mm. It is constructed of radiata and hardwood scrap using a selection of coach screws, bolts, wing-nuts and washers and took about half a day to make.

You will need the following:

2 lengths of radiata (850 x 35 x 70mm)
4 pieces hardwood (70 x 40 x 65mm)
4 pieces hardwood (160 x 60 x 95mm)
4 x 120mm 1/4" coach bolts
4 x 1/4" wingnuts
28 x 1/4" coach screws
16 x 60mm woodscrews
8 x 1/4" steel washers

Begin by routing an open slot of 650mm long on each radiata piece. Rout the piece all the way through and then widen the slot by 5mm all around on one side to a depth of 5mm. This will allow the heads of the bolts with accompanying washers underneath each hardwood jaw-block to slide freely along the underside of the radiata runners.

Then take the larger set of hardwood blocks, clamp each individually to the bench and using the rotary carver, create shallow hollows on one side of the broad faces of each to a depth of about 30mm. Take the smaller hardwood blocks and fix one to the rear of each larger block using both glue and woodscrews (four for each). Be sure to align the bottoms of the blocks before fixing them together so that they both sit flat against the runner. This will prevent the assembled blocks from tilting up or downward under tension.

You will now have assembled what I call a 'jaw-block'. Coach screws are next fixed from the rear of each jaw-block facing inward into the concave face. Mount three vertically on each side with one extra above the rear support block. These will then adjust to accommodate the random unevenness of the burl exterior.

Attach two jaw-blocks to each runner, with the bolts inverted so that the heads (with washers) slide freely along the wider underneath sides of the slots. Fix the washers and wingnuts to the top sides of the bolts which now protrude from the rear support blocks. Should the jaw-blocks require additional tension this can be done using a standard ratchet-style truck strap available from most hardware stores.

Hopefully your jig will work as effectively as mine does and will allow a trouble free time for those interested in burl-carving rather than 'limb'-carving. □

By Terry Martin

The History Of Turning (according to Newman)

The second World Turning Conference organised by the Wood Turning Center in the USA was held in September, 1997 at two venues—the Berman Museum in Pennsylvania and the Winterthur Museum in Delaware. As well as the large number of American attendees, delegates from various countries such as Germany, Switzerland, Romania, France, England, Canada and Holland helped the conference live up to its aim of representing the world of turning.

Of course, no international gathering of turners is complete without Australian representation and this year there were two turners filling that role—myself and Ernie Newman from Blaxland in NSW. Because Ernie is an instructor in the Woodturning Trade Certificate Course in Sydney, I assumed he was going to demonstrate traditional spindle work. But when I read the programme I saw that his demonstration was entitled 'History and Mystery'. Like a lot of others, I looked forward to seeing what it meant.

The timing of Ernie's demonstration was perfect. The Wood Turning Center aims to bring woodturning into the realms of art and is dedicated to creating an environment of critical discourse and academic analysis. Highly commendable, but after one and a half days of presentations such as 'The Phenomenology of the Vessel' and 'A Balanced Approach to Design and Integrating Objective and Subjective Thought Process', many of the audience were ready for a break. After all, there were a lot of woodturners there and they do like to watch wood being turned.

Ernie was doubly fortunate as the weather was perfect. It was a balmy Autumn day and he had a *Oneway* lathe set up under a tree. His materials were laid out in precise order on a table and he had been busy for hours sharpening his tools. When there was a reasonable crowd Ernie took a breath and launched into what can only be described as an absolute avalanche of commentary and entertainment. The crowd was literally stunned by his energy. I saw some of the best known names in woodturning, such as David Ellsworth and Al Stirt, nodding and laughing their approval.

Ernie explained that he was going to demonstrate the evolution of turning down the ages, but it wasn't enough for him to go back a few hundred years—he took the audience right back thousands of years to the products found in ancient tombs and then proceeded to explain what had been made and how it was probably done. He had reproductions of historical pieces which he handed around for the audience to feel while he demonstrated and kept up a running commentary which had everyone fascinated.

Beginning with a stool leg from Jericho, circa 1600 BC, he progressed through an Irish bowl (1200 BC), a Bavarian vessel with a captive ring (600 BC), spinning tops from Greece (500 BC) and Italy (200 BC). With hardly a pause he charged through history, covering medieval chair turning, mentioning famous turners such as Leonardo da Vinci and Martin Luther along the way. He then leapt to the USA and turned an 18th century Pennsylvania Dutch cabriole leg and then back home to knock out an Australian colonial leg. To round off the journey he turned what he claimed was the 'worst-designed piece of turning in history'—a 1950s TV cabinet leg.

A breathtaking and hilarious journey, broken up with demonstrations of turning using a sharpened garden pick (did it show up on the airport X-rays?) and a shovel ('that's not a woodturning tool—this is a woodturning tool').

Ernie's technique was very impressive. Everyone knows that at any demonstration of woodturning there is an element of 'OK, impress me!' He not only impressed, he left them with their jaws hanging open. From the first moment when he roughed a blank to round, to when he had done all of the possible cuts with a skew chisel, including using two skews at the same time, he had the audience mesmerised.

Ernie holds up a copy of an ancient turning. In the front row are Alan Lacer, ex-president of the American Association of Woodturners (in vest), Al Stirt, turner of renown in the USA for many years (next right) and Sigi Angerer, president of the Swiss Association of Woodturners (next right).

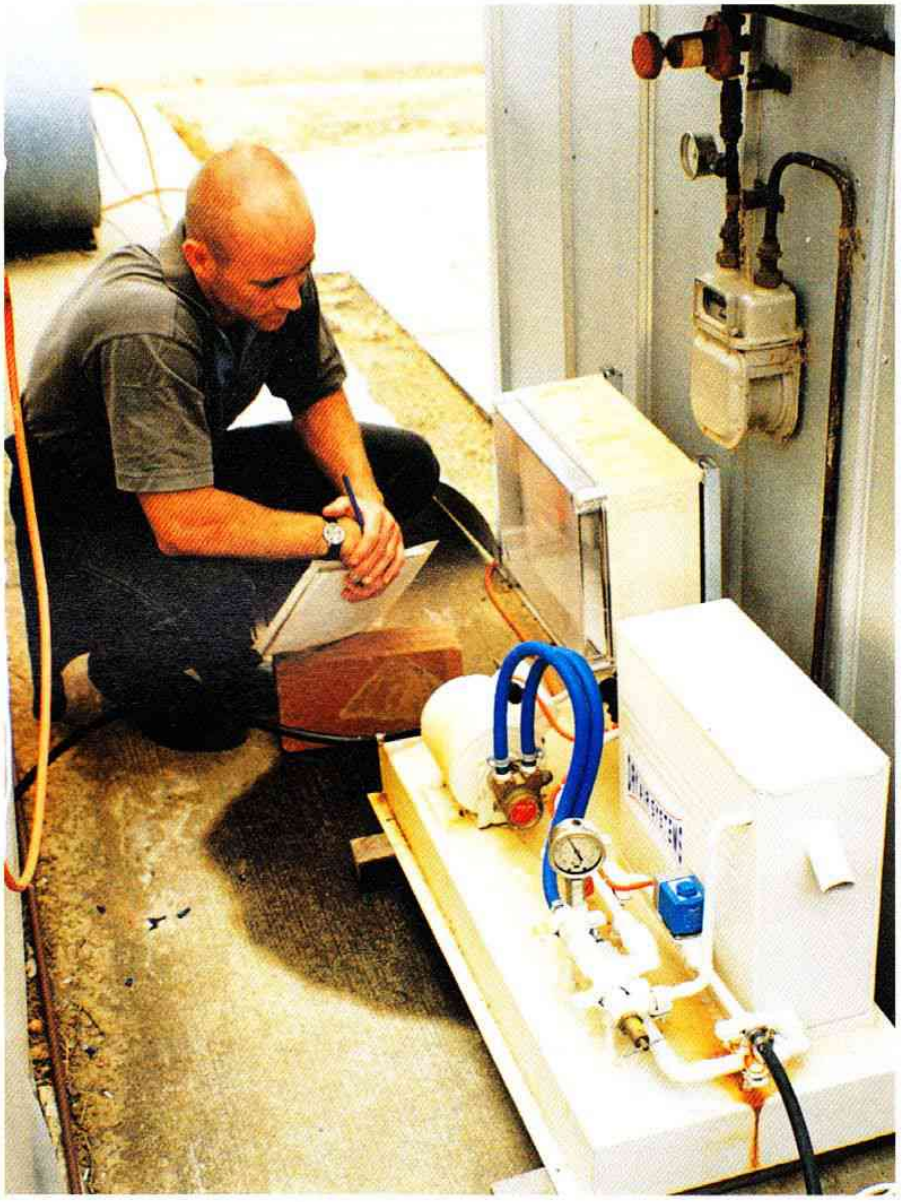
WHEN LESS IS MORE

The solar kilns developed by CALM at Harvey have been instrumental adding value to Australia's timber resource. Removing moisture is the first step to preparing timber for further processing.

A wood utilisation research centre was established at Harvey in south-western WA in 1985. The facility was originally a pine sawmill set up by a forerunner of CALM to utilise a growing pine log resource. At that time a kiln drying facility was added to demonstrate that high temperature drying was not just a laboratory notion.

In recent years the major focus has shifted to drying and adding value to native species, initially jarrah and then karri. Most recent trials have extended to marri, which forms about 60% of the 700,000 tonnes of woodchip exported from WA each year. The seasoning and processing of marri has been a recent area of study in conjunction with Perth furniture producer BVR Furniture (see story this issue).

CALM Timber Technology at Harvey has its own milling facility, seven solar drying kilns and Valwood™ manufacturing plant. Four courses (a day each week for seven weeks) are given per year on timber drying technology to 8-12 people at a time. The centre employs 12 full time and casual staff.



Technical officer Peter Hill with experimental unit for controlling switching and water pressure for foggers (humidifiers) on one of the solar kilns.

The Kilns

The solar kilns at Harvey are powered by solar radiation with heat added by gas heaters or wood burning. From the exterior the kilns present as large plastic-covered frames resembling agricultural greenhouses. A 'greenhouse' effect is in fact employed to trap the sunlight and 'bake' the stacked timber within. There are two sheet plastic skins which are inflated by a small fan to create a gap between them. The double layer insulates better than a single layer would and also makes for a more rigid 'wall' which won't flap in the wind.

There are three essential components of a kiln. The first is a source of energy to heat the environment and cause the evaporation of water. The second is an airflow mechanism which can move the heated air over and through the timber. Lastly, heat and humidity levels are monitored by a sensor which in turn controls air vents and water sprays. Control of airflow is critical as even drying of each board, regardless of its position in the stack, is essential to produce boards which all have the same moisture content.

The facility's high temperature kiln

is a concrete and chicken wire structure (similar to a ferro-cement boat) which is heated by a diesel-fired boiler which heats oil to 250°. Fans force the air over fins which contain the oil, and baffles regulate the airflow over the top of the stack and then down the other side. The fan reverses the airflow on a two-hour cycle. As this kiln was initially built to dry pine with its very high moisture content, no mechanism was introduced for the addition of humidity, however the kiln is vented. Twenty per cent of the timber dried in the kiln is now eucalypt. After drying, the 'charge' (a maximum 20 cubic metre kiln load of timber) is railed 50 metres away to a connecting steaming chamber to be reconditioned.

The sawmill on the facility is a low volume set-up with a variety of saws including a horizontal bandsaw, two vertical bandsaws, a breaking down frame or gangsaw and a circular saw. Rather than supplying mills with sawn timber via its logging contractors, CALM's current policy is to encourage mills to accept whole 'boles' of timber. The mills will in this way have a final say over how the boles are trimmed and sawn.

The kilns handle about 80 cubic metres of timber. The time taken to dry a load depends on the species and thickness of the boards. A load of 25mm boards will take around 50-60 days to dry; 50mm boards will take around double that time. The refinement of drying schedules is a great deal of the science of timber drying technology. In addition to continual monitoring of timber dried in the full-scale kilns, CALM's technical officers can undertake more specific trials in an electronically heated and computer controlled kiln which takes up to one cubic metre of timber at a time.

Of the six solar kilns two are dedicated to the drying of karri and as such have been manufactured from stainless steel—the moisture released from karri contains a highly corrosive chemical. Trials on the drying of marri are also being conducted in these kilns. CALM solar kilns are sold to smaller mills and are manufactured under licence by GDC International. *(ctd p.82)*

ALL'S CALM IN WA

Western Australia is vast and the forested areas within it are some of the largest in the world. CALM is a beautiful acronym for an organisation we might all like to work for. The 1,260 officers of the WA Department of Conservation and Land Management oversee national parks, State forests, marine, conservation and rainforest reserves—in addition to managing plantation forestry and research facilities. CALM has four programs—nature conservation, forest resources, tourist and recreation and astronomical services.

In 1987 the department released a document entitled *Timber Production In Western Australia, A Strategy To Take WA's South West Forests Into The 21st Century*. The strategy was to balance the needs of all forest users, both the general public and the timber industry. Most importantly the document promoted the concept of value-adding to WA's native hardwood resource, capitalising on its value for both local and export markets. CALM's *Forest management Plan 1994-2003*, released in 1994 further pushed the barrow of value-adding through a number of specific measures. In light of the hardwood green sawn structural timber market being reduced by plantation-grown softwoods, the support for these policies gained momentum.

West Australia began trialing commercial tree plantations around 100 years ago. There are now in excess of 125,000 hectares of softwood and hardwood plantations. Around 10,000 hectares of bluegum is now being planted each year, making it one of WA's major commercial species. Farm forestry is one of the state's fastest growing industries and is simultaneously combating landcare problems of salinity and erosion.

Value-adding to WA's main native species of jarrah, karri and marri amounts firstly to grading and seasoning the timber for further end use, including appearance grade products. The 1994 plan saw ten- rather than one-year contracts of sale issued. The resulting security of tenure makes investment from the timber industry in drying and processing technology more viable.

Eighty per cent of the log yield from native forests is now licensed by CALM in ten-year contracts to two major companies—Bunnings (70%) and Whittakers (10%). The contracts are granted with the proviso that 50% of greensawn timber of first grade jarrah and karri logs have to be value-added (that is, dried and graded to higher than structural grade). Bunnings are putting more than 50% of greensawn timber into kilns and have invested heavily in pre-driers at Yarloop, Deanmill and Manjimup. Several smaller mills have also installed kilns, or verify with CALM, in six monthly production audits, that at least 50% of their greensawn timber will be dried elsewhere.

Another project focusing on the processing of small eucalypts was instituted in 1986 whereby Commonwealth money was given on a $1 for $2 basis to encourage sawmillers to invest in value-adding technology. CALM has also devoted recent energy to the marketing and selling of value-added plantation grown Tasmanian blue gum flooring. Bunnings are now supplying blue gum to Japanese and Korean paper producers.

In recent years there has been a drive to corporatise CALM following the recommendations of the independent WA McCarrie report in the early 90s which focused on various government activities. Executive Director Syd Shea instituted a ten year plan to balance income from eco-tourism, plantation management, and log harvesting licences with Commonwealth Government grants.

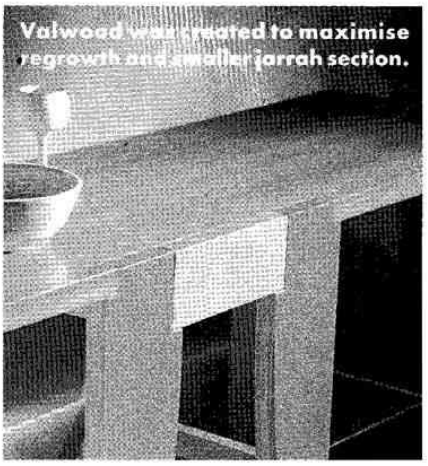
THE VALWOOD PRODUCTION PLANT

Valwood is a laminated timber product which is made from 25-30 year jarrah regrowth or plantation blue gum and is marketed nationally. Manufacture of this product is a large part of the Harvey operation. The concept was developed in its entirety to maximise usage of smaller jarrah section. (Another project focusing on this area is the development of single laminate tongue and groove flooring). Having successfully developed this product CALM is presently offering this product to licensed manufacture.

The process is carried out in an efficient operation which takes place in a 30 x 10 metre shed. Random width boards are skip-dressed to 12mm thickness. The boards are graded, sorted and docked for use as either face, substrate, or backs.

Face boards are colour-matched, coated with urea formaldehyde adhesive and glued into panels up to 900mm wide and 2400mm long. The edge gluing machine pushes the edges of the boards together and applies face pressure at the same time to stop the individual boards lifting. The panels are heated at 100°C for 5-7 minutes to set the glue and then dressed down to 10mm.

Three layers are laminated together to form each 30mm thick panel. Stacks of panels with plastic between each are cold pressed overnight in another press. The panels are trimmed on a

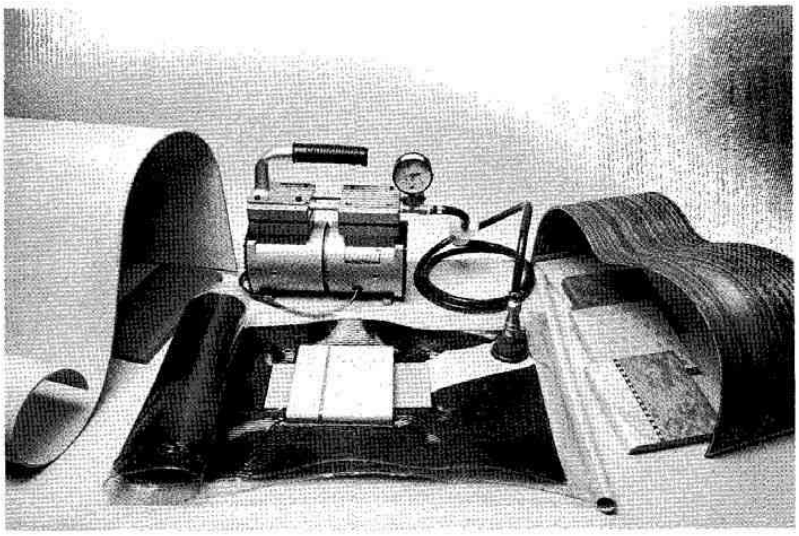


panel saw, passed through a wide belt sander, pre-finished with a sanding sealer, plastic wrapped and packed for delivery. Panels are available in various sizes to suit most interior applicaitons. For your nearest stockist contact (08) 9334 0333.

WOOD NEWS

Forestech Lives

A national centre for excellence in all aspects of the hardwood timber industry, ***Forestech The Living Resource Centre***, is now operating. The centre will focus on and expand East Gippsland Institute of TAFE's established training courses in natural resource management, forest operations, furniture design and production and eco-tourism. With placement for up to 120 full time students, the centre also offers short courses and research opportunities. The architect-designed facility is constructed of radially sawn yellow stringybark cladding with feature timbers including ash veneer, natural feature grade flooring and hardwood furniture. Contact Kevin Breheny or Wally Smyth (03) 5152 0700.



CRAFT MARK AUSTRALIA

Craft Marking It

Craft Australia has developed a logo identifying high quality Australian craft for use on promotional material. To qualify for use of the ***Craftmark*** practitioners are invited to send three slides of their work as well as completing a career questionnaire. To become an accredited ***Craftmark*** retailer, a panel will assess the numbers of professional Australian craftspeople whose work is stocked, craft turnover and commitment to the cause. Craft Australia (02) 9211 1445.

International Furniture Show

New technologies available in the use of Australian timber will be showcased at this year's ***Sydney International Furniture Show***, May 14-17, at the Sydney Showground. Leading designers specialising in Australian timbers will show that design need not be a one-off affair. The show is being co-ordinated to run with the inaugural furniture research conference, ***Furniture Technologies 98***. Contact Rodney Sheaves, FIAA, NSW (02) 9580 8922.

Tasmanian Woodworking

The ***Tasmanian Woodworking Show*** in February revealed the concentration of talent and skill in that state. Around 10,000 people attended the event at Launceston.

Come in Spinner

Even Da Vinci had a crack at designing a spinning wheel, however, he 'had difficulty in clearly describing his spinning and spooling machine. Vital parts of the mechanism seem to have been purposely obliterated from his drawing, possibly to avoid religious persecution.' Now, maker of the *Sheridan* brand spinning wheel, Eric J. Corran, has released a book that not only fills in the gaps of Leonardo's designs by translating the Greek texts, but details the evolution of the wheel. This comprehensive guide, ***Understanding the Spinning Wheel***, is not a book about spinning, it is the work of an engineering mind applied to a love of wood and woodworking. From the *Luttrell* wheel of 1310 used throughout the villages in Lincolnshire, England to the *Irish Tension*, *Bobbin Drag*, *American* and Scandinavian wheels to wheels used by present day spinners, every aspect of the wheel design and function is explained. This substantial hardcover even provides complete sets of ready to build plans and retails for $60. Information from Mrs Min Corran (03) 9853 8187.

Native Timber Expo

Spreading the message of sound resource use and promoting sustainable economic opportunities, *Greening Australia* has organised a ***Native Timber and Furniture Expo*** for October 17-18, in Albury, NSW. Professional furniture makers, mobile sawmillers, polishers, carvers and collectors interested in exhibiting can contact Mark Logan on (03) 58815631.

Design Guru Speaks

Pre-eminent designer and architect, *Philipe Starck*, will make a rare public appearance at the ***International Contemporary Furniture Fair*** in New York this May. The ICFF is the showcase of everything contemporary from furniture to decorative accessories.

International Exhibition

The 12th Annual Conference of the American Association of Woodturners in June corresponds with the opening of the association's second international juried exhibition, ***Pathways 98 Turning Towards the New Millennium.*** Entries are called for, information from Robert Thurmer, Art Gallery director, Cleveland State university, 2307 Chester Avenue Cleveland, Ohio 44115. Telephone 216-787-2103. Send a 35mm slide with $15 fee deadline is April 3.

Hare and Forbes Sale

Hare and Forbes Annual Sale is on again in Brisbane and Sydney from March 12-15. Aside from the bargains and demonstrations, technical help will be on hand from representatives of *Durden*, *DeWalt*, *Electra Beckum* and *Record*. The biggest discounts will be on the range of ***HAFCO*** equipment. Brisbane (07) 3849 1888, Sydney (02)9633 4099.

WOOD NEWS

Blackall Range

The beautiful Blackall Range, north of Brisbane is home to creative endeavour. This year's ***Chainsaw to Fine Furniture Exhibition*** will host displays of musical instruments, toys, portable sawmilling and woodturning, along with furniture built with the timbers of the range. The event is organised by local landcare group, *Barung Landcare*, to advocate principles of sustainable harvesting of native forests, timber salvage, extension of native forests through to the establishment of farm forestry plots. At the Maleny Showgrounds, Labour Day Weekend, May 2-4, (07)5445 7325.

'4-Person Dining Table' made of brown barrel (Eucalyptus fastigata) by Simon Hill was one of the entries in the 3rd Natural Feature in Furntirue Award at last year's Melbourne Timber & Working With Wood Show.

Marquetry Craft Internets

Marquetry Craft Co. now have their complete catalogue on the net at http://www.marcraft.com.au but for those who prefer the mighty pen the catalogue is available by post for $5, write to 1 Burrandool Ave, Nowra North 2541 or FaxBack 02 4423 4718.

Bush Festival

The Australian Bush Festival at the Rockhampton Heritage Village May 9-10 will celebrate the opening of the first stage of the village. If you are interested in participating in the wide range of activities including bush markets, poetry, yarn telling, demonstrations, music, arts and crafts, then contact the organisers (07) 4936 3576.

Interiors

Interior Designex in Sydney this April is forecast to be bigger with more of everything—including design heavyweights Dr Alberto Alessi and Spain's Enric Miralles. Information from (02) 9819 0211.

Ornamental Turners

Ornamental turners will celebrate their first national meeting in Oyster Bay from March 13-15 with a three day seminar including demos by John Rea, Alf Jordan, John Jennison and Jock Golding. Open to anyone interested in ornamental turning. Contact Alf Jordan (02) 9727 2116.

Movement

The Woodturning Centre has moved to a new address: 2/34 Winbourne Rd, Brookvale (02) 9938 6699.

Munich 'Talente'

Contemporary craft awards, ***Talente***, part of Munich's *International Craft Fair* will feature the work of ten young Australian craftspeople this year. 'The exhibition usually only includes the work of 50 artists, so to have Australian craftspeople represent 20% of the exhibition demonstrates a positive acknowledgment of the current state of Australian crafts practice by young practitioners,' says John Odgers, General Manager Craft Australia.

Denis Martin of 'In-Wood' preparing for 'From Chainsaw To Fine Furniture'

Two of the chosen few will act as ambassadors for Australian furniture: Adrian Potter of the *Jam Factory Craft and Design Centre* and Jay Watson of the *Canberra School of Art*. Craft Australia acts as a commissioner for the Australian submission for *Talente* and invites submissions from tertiary and TAFE institutions from across Australia. Information from Emanuel Psaltis, 02 9211 1445.

Fast Drying

When up to 25% of forestry industry costs relate to the seasoning of timbers any technological advance on this front is welcomed. Melbourne University's Professor Peter Vinden and visiting Professor Grigori Torkovnikov are working to ensure that there are advances made in this country on the concept of microwave seasoning of our indigenous hardwoods. The building of a 60kw kiln has its sights set on a 24 hour period from logging to final product. Such a goal would revolutionise the already changing face of the sawmilling industry.

Melbourne Awards

The Melbourne Timber and Working With Wood Show turned up some winners again late last year in its two major competitions. The National Woodwork Competition and the Natural Feature Grade Competition. Ian MacKenzie's ***Wave Screen*** of Victorian silver ash and veneer of natural feature grade won. Winners of the national competition awards were: traditional furniture category Robert Howard (jarrah rocking chair); contemporary furniture, Anton Gerner (16 Draw Chest); woodturning, Stephen Hughes (Space Sphere#1); decorative/ornamental, Henry Black (If it Moves—Chainsaw). Students Jaron Martin and John Paterson also won awards.

More Winners

The West Australian Woodturners Association held their Annual Awards late last year with ***Best Thing Turned in 1997***. Three winners turned up—beginners, Dan Killgallon for his inlaid bowl; intermediate, Jim McDonnell for a platter with a sculptured rim; and open section, Gordon Ward's 'Mathmagic' suspended bowl.

Singapore Furniture Fair

Despite the recent fluctuations on the Asian markets ***The Singapore International furniture Fair***, in conjunction with the ***15th ASEAN Furniture Show*** has drawn an increased percentage of exhibitors this month. Furniture manufacturers and exporters from Australia, China, Hong Kong, Korea, Japan, New Zealand, Denmark and Taiwan took part.

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WOOD NEWS

Dust Control

A new *Woodman* ***Two-Stage Central System Dust Collector*** is out offering a compact final stage cyclone separator, steel blower with self-cleaning, spark resistant aluminium radial-blade blower wheel and a patented fabric filter bag. The filter bag removes 99.9% of particles 5 microns and larger and is potentially 400% more efficient than cotton bags. The 3hp (single phase) model sells for $3590 and the 7.5hp (3-phase) model sells for $4590. Further information is available from Woodworking Warehouse (03) 9555 5199.

Router Tables

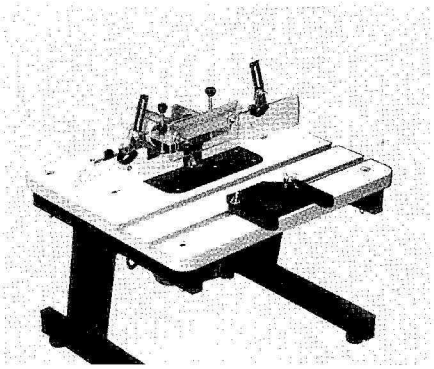
Cherrybrook Cabinetmaking has introduced value-for-money router tables into Australia. Previously sold in the UK under the *Charnwood* brand, these tables include a range of features not available on other tables. Priced from $500, information from Denis Wright (02) 9481 8716.

Arbortech Accessories

Arbortech's Mini Carver has some new accessories, the mini-industrial tungsten blade (50mm diameter) and mini-sanding discs open up more possibilities for these tools. Phone (08) 9249 1944

Ready to Roll

Vicmarc Machinery have introduced a new compact version of their *VL100* lathe. The



W004 Heavy Duty Router Table from Cherrybrook Cabinetmaking

new version comes with its own base and motor ready to start work immediately! Easily transportable and great for demonstrators. Vicmarc (07) 3284 3103

Two New Products

Hare and Forbes' new T-12A thicknesser, has a 2hp dynamically balanced double edged cutterhead, mounted on four columns which reduce vibration and increase rigidity. The 318mm width and 153mm depth of cut are ample for most use.

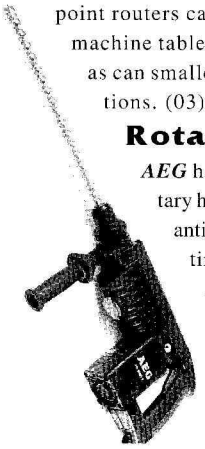
Their new ST-12H Tilting Arbour Sawbench has a 3hp motor. 300mm carbide tipped blade. cast iron table and heavy duty double-locking fence. Brisbane (07) 3849 1888, Sydney (02) 9633 4099, WA Fiora Machinery (08) 9356 1811 or SA Hercus Products (08) 8346 5522.

Chisels

Promac now distribute the legendary ***Ashley Isles*** tool range, made in the UK. Both turning and carving chisels are stocked in an enormous range of sections and sizes. (07) 3279 4811

Laser and Waterjet Cuts

From hardwood to MDF, waterjet and laser cutting technology promises a reduction in waste, time and costs. All shapes can be cut within very tight tolerances leaving minimal material for secondary routing processes. Larger sheets too big for conventional point-to-point routers can be cut on the massive machine tables at ***Waterjet Dynamics*** as can smaller, narrower timber sections. (03) 9335 1739.



Rotary Hammers

AEG have released two new rotary hammers. A patented AVS anti-vibration system reduces tiring vibration by up to 50%. The PN6000S offers a 34mm drilling capacity in concrete and a 150mm core drilling capacity. Atlas Copco (02) 9621 9482.

PRODUCT REVIEWS

VERITAS BRASS INSERT KNOBS

Sometimes you just can't find the right knobs for a project. However help is here courtesy of Veritas, a Canadian company which makes specialised woodworking tools and fittings. Their brass insert knobs are easy to use and provide an easy way to customise your own hardware.

Choose the size knob you want (the outside diameters vary from 3/8" to 1-1/8") and cut a plug of timber to fit the insert—I used a standard plug cutter. The plug is glued in with *Supa Glue* and then turned or sanded down to final size. For the latter I mounted the knobs in a mandrel (see photo below) and spun the lot in an electric drill.

It's all fairly fiddly work but the results are worth the effort as traditional brass combines with your selected timber to match the project. The brass knobs cost between $4 and $10 each depending on size and the mandrel to hold the work in a drill is $4. Available from Carba-Tec, 1800 658 111.

Reviewed by Rod Nathan

PANASONIC EY3503 CORDLESS SAW

I would personally like to see every power tool in the workshop cordless. Unfortunately the technology for this is still lagging but we are getting closer, as proven by the recent appearance of cordless saws.

Initially, I had doubts about the ergonomics of this saw, however the design of the handle works well, and the safety switch is effective (a lever must be depressed prior to operating the trigger). The safety switch is important because the saw has a playful feel to it, but it's certainly not a toy.

The saw uses a narrow kerf tungsten-tipped sawblade which leaves a clean, polished finish on both hard and softwood endgrain. The riving knife, a good addition, can occasionally foul in the narrow path of the sawblade.

The saw had no problem cutting plywood, 18mm particleboard, pine or Australian hardwood, although as expected with any small saw (including ones that are mains powered) you can't ram it through 35mm hardwood.

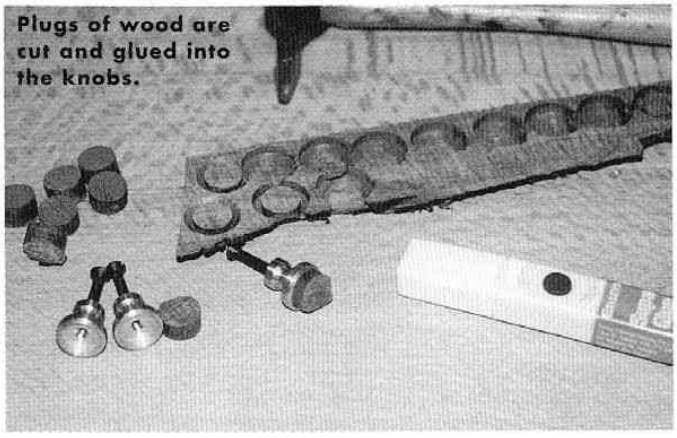
At first I clamped a straight edge to a particleboard sheet and achieved a very straight and clean cut. Next I simply pressed down on the straight edge with one hand and still achieved an excellent cut (due to the low torque I assumed).

On trial the saw made 56 complete cuts through 90 x 35mm radiata pine on one battery charge and around 44 cuts through 90 x 19mm hardwood. It comes packaged with two 20 minute fast charge batteries and a very sophisticated charger.

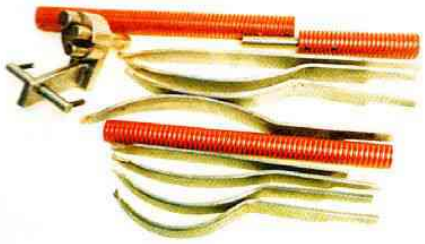
This nifty little saw is very good, but do not look to it to replace your mains-powered tool. On the other hand it will be brilliant for using in places where power is unavailable, getting into awkward spots, cutting smaller sections of timber, plywood or panel products or as a second saw. The batteries are interchangeable with those of Panasonic 12 volt drills and the tool can be connected to workshop vacuum systems. Priced at around $559 the saw is available from all specialist tool dealers.

Reviewed by James Brook, Technical Editor

Veritas Brass Insert knobs with blackwood inlaid.



Plugs of wood are cut and glued into the knobs.



The New Kel McNaughton System

The *New Kel McNaughton System* is a centre saving system which is manufactured in New Zealand. For those familiar with the older version you'll find the main changes are a new tool post gate and the availability of longer and stronger blades. The large blades will release a saved centre of up to 450mm in diameter, a step up from the smaller blades which will only save a bowl 300mm diameter.

The system works by swapping your tool rest with the Kel McNaughton tool post after you have prepared the foot section of the blank. The gate should be set up close to the front of your bowl blank and the height adjusted so that the tip of the cutter is slightly above centre.

The gate can be adjusted sideways for different diameter bowls by moving the tool post. On larger pieces the use of the tailstock is recommended to support the middle section.

The system is very safe, as the posts on the gate will stop the blades from tipping sideways and the cross brace will stop the handle from rising as the tool is pushed into the blank.

You should cut a wider kerf than the front edge of the cutter to prevent jamming. This can be done by either moving the handle sideways back and forth as you cut or you can cut a small section, bring back the blade and cut about another half a blade width.

With green wood you will need to regularly clear the shavings by bringing the blade back to let them clear, or you can use a compressed airgun.

The larger set of blades has three different shapes, one straight and two with curves of different radii. Also supplied is a large 430mm long handle with a 180mm extension for larger jobs. The smaller set of blades is available with three different curved shapes and one straight blade, while the handle is 400mm long.

The advantage of the shaped blades is that a variety of shapes can be cut by changing the approach angle of the blade. All blades are tipped with a hard wearing cobalt alloy. Sharpen the front edge with a few upwards rubs of an *Arkansas* or diamond hone.

The new gate will accept both large and small blades. Another feature of the new system is that left-handed curved blades are available for those turners who like to release bowls while the top of the bowl is still facing the headstock of the lathe. The advantage of this method is that you can turn a foot on each saved bowl before releasing and the largest most important bowl is released.

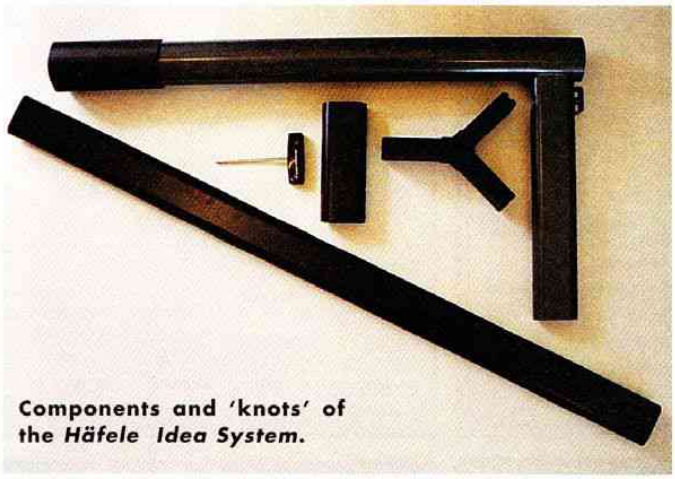
When using the straight blade in the gate you can save a mirror or picture frame from the bottom corner of bowl blank. You can also make a saved bowl as large as your original blank by saving the bottom section described above and gluing it to the top of the larger released bowl. The smaller released bowl could be glued onto the bottom to form a foot.

The system is strong, safe and extremely versatile and has great potential for creative turning. The post can, for example, be used to produce multi-walled vessels or positioned at the side of a deep blank which will allow the release of stacked dishes.

An optional gate to the post enables other accessories to be used including the Kel McNaughton long range shear scraper, and long range hollowing tools.

The system is available from The Woodworks Book and Tool Co (02) 9807 7244 or Bailey's Toolbank (03) 9897 1911.

Reviewed by Neil Scobie



Components and 'knots' of the *Häfele Idea System*.

HÄFELE IDEA SYSTEM

This is a very clever, sophisticated, yet simple knockdown frame for tables or desks. The basics of the system are the 60mm diameter steel tube legs which have short rail lengths welded to them, other rails are joined to this by way of a connector (*Häfele* term this connector a 'knot').

The rail sections are available in 200mm increments up to 1800mm in length which gives some idea of the flexibility of the system. A few twists of an Allen key lock everything in place while the legs can be adjusted 110mm up or down by a simple threaded plastic collar.

I assembled a simple frame assembly that would suit a 1800 x 900mm table top, time taken was around 3 minutes, not bad considering most of this time was taken up unwrapping the components. Don't be fooled by the time frame though, this is a very strong table frame.

The *IDEA* system is not limited to rectangular forms however, as the T-shaped or angled knots and various leg and rail combinations can be configured to form circles, ovals, octagons or whatever shape you need for table or desk top.

It's a bit like *Lego* for cabinetmakers. Tops are secured with screws through pre-machined holes and connector plates are available for joining angled top sections. Fittings are also available to secure modesty panels for desks (although I had some reservations about the appearance of these fittings) as are supports for electrical cabling.

Solid timber table tops can be secured, although really the system was designed for panel products. Off the shelf the legs come in a metallic grey finish although I understand virtually any colour is available to order.

Häfele (03) 9212 2000

RYOBI BE-424 VARIABLE SPEED SANDER

This is rated as a 4" or 100mm tool taking as it does a 100 x 610mm sanding belt, which is the industry standard. Weight is an issue with any 4" belt sander as the sanding of benchtops and components can involve several hours of carrying time. A heavy sander can turn this type of job into a weight-lifting workout.

One of the main attractions of the BE-424 therefore is its noticeably lighter weight (compared to similar tools) which derives from aluminium and plastic housings, although there seems to be no compromise in regard to tool strength. The balance of a sander is a very important factor, *Ryobi* have offset the handles a little for this reason and while the balance is okay, I would have preferred the weight to have been distributed straight down the centre of the tool.

Power, for a tool this size, is adequate and the variable speed range of 230-350 metres a minute is excellent giving more control on delicate edges, veneers and corners. The actual speed control mechanism (a dial) seems a bit lightweight though. Similarly, the belt tensioning lever, made of plastic rather than steel, prevented me from using some older sanding belts, although new belts posed no problem at all.

The belt runs over a metal platen and the dust bag collection works well, as did the tracking control. In general roller alignment, and hence belt running, is very good.

Performance was good and the sander is easy to use—remember however, that this size sander takes practice to use well, no matter what the brand. The *Ryobi BE-424* is available from most power tool retailers.

Reviewed by John Girola, cabinetmaker

The Ryobi BE-424 variable speed sander

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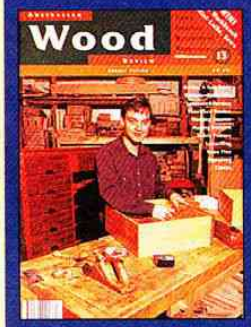
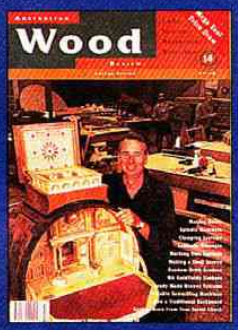


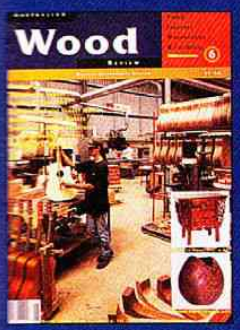
No. 13

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



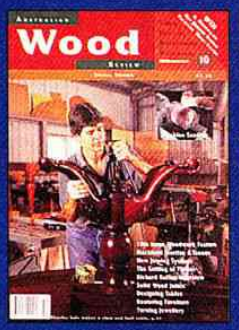
No. 14

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.



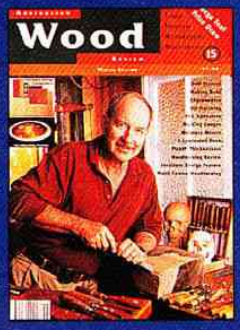
No. 6

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.



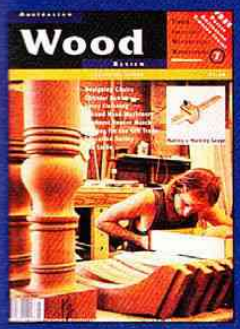
No. 10

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. 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

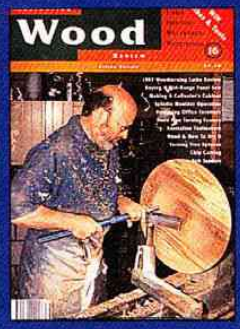


No. 7

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

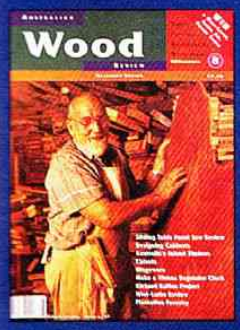
No. 11

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.



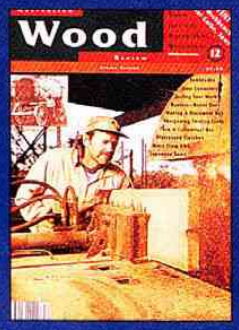
No. 16

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. 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. 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.

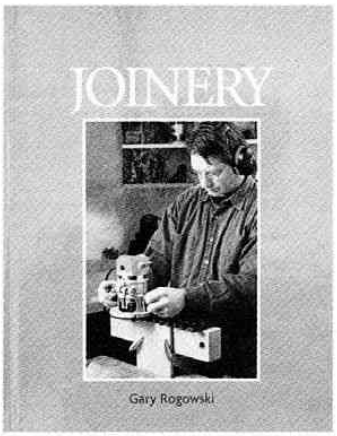
No. 17

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.

Bookshelf

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

Book reviews by Dana Redmond

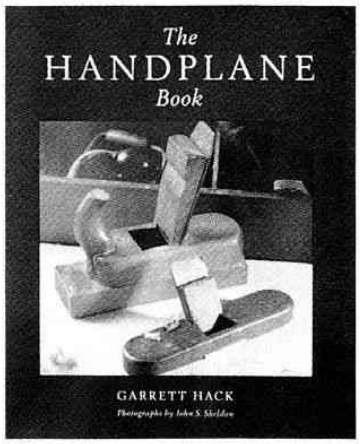


Router Joinery

By Gary Rogowski

The router has revolutionised wood-to-wood joins and is now regarded as a standard woodworking tool. Rogowski draws on this precept as he devolves the strengths and limitations of routers alongside the principles of joinery. The first part looks at the various routers available and their capabilities as well as discussing bits, fences, guides and jigs. Part two discusses the role of joinery in furniture making and explores a variety of joints. Part three reviews router cut joinery for each of the principal systems of furniture construction (cabinets, doors and beds, chairs and tables) as well as set ups, fixtures and jigs. The clear illustrations and precise detail based on the author's 23 years of experience, ensures this book's prominence as an essential joinery handbook.

Hardcover, 181 pages, $60

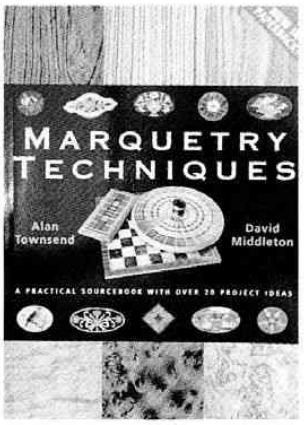


The Handplane Book

By Garrett Hack

'...The really good plane becomes an instrument...something that you want to make music with,' says James Krenov. This is perhaps why professional furniture maker and avid plane collector Garrett Hack wrote this definitive book. There are many varieties of planes and knowing what can be done with them expands the possibilities. From a history of planes to their mechanics (including tuning and how to use them) a chapter is also dedicated to each of the following: planes for truing and sizing stock; for joinery; for surfacing; and planes for shaping. Specialty planes and contemporary plane makers are also discussed in detail. This book underlines the romance in handtools and would make an ideal addition to the lover of the same.

Hardcover, 263 pages,$75

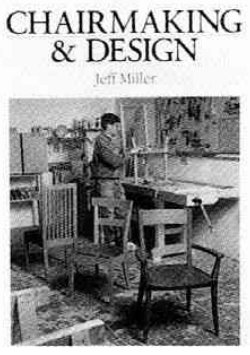


Marquetry

By Alan Townsend and David Middleton

This practical sourcebook with over 20 project ideas has drawn on the authors' combined experience and knowledge in veneer preparation, cabinetmaking and prize-winning marquetry (four-time winners of the coveted Marquetry Society of Great Britain 'Rose Bowl' award). From a detailed description of modern marquetry techniques and tools to the application of such to the various plans for a selection of projects there are boxes, clocks, board games, turned work and flat surfaces to make. A practical book offering a key to the door of marquetry.

Paperback, 144 pages, $39.95

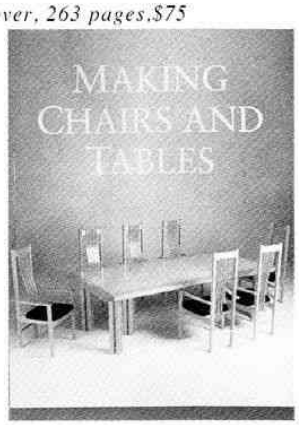


Chairmaking and Design

By Jeff Miller

From the practicalities of comfort and durability to the aesthetic values tempered by history and culture, chairmaking challenges the furniture maker and designer like never before. Chairmaker and chair obsessive, Miller has examined these parameters to produce a fundamental guide to the art. He traces the basics before addressing eight different chairs in detail. Apart from the detailed plans the book reads well and teaches in the process.

Paperback, 199 pages, $55



Making Chairs and Tables

Collaborative

Twenty-three inspiring practical projects with plans for tables and chairs by a number of makers fill these pages. Rattan weaving, principles of upholstery and finishes are also included to ensure the project is complete. From the faux marble table top, to the cane finished table; from the traditional to the contemporary; from the simple to the complex, this eclectic collection is for the doer and the dreamer.

Paperback, 120 pages, $29.95

French Polishing

By Philipa Barstow and Alan Waterhouse

Despite the dominance of cellulose spraying as a furniture finish since the 1920s the finish offered by French polishing remains unsurpassed and an art of the initiated. Polishers Barstow and Waterhouse have set out to de-mystify the process by showing the practical sequences involved. Briefly they trace the history of the different types of finishes and suitable methods of work for each, before walking the reader through the logical steps of preparation, tools, techniques and problems. The final section is dedicated to projects such as a walnut chest of drawers, a Macclesfield chair, an African walnut chair, Georgian mahogany chest of drawers, mahogany bureau, repro furniture and pine doors.

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PIANO REVOLUTION

A piano conceptualised a dozen years ago as a submission for this country's New Parliament House and launched in a less grand manner in 1995 is currently challenging the monopoly *Steinway* has on the market, not to mention its influence on our notions of how a piano should sound. The *Steinway* was revolutionary last century, suited as it was to the rich, heavy and blurred bass sound of Romantic music.

Dramatic under lights, and a revelation under the hands of the country's leading concert pianists, the new Stuart and Sons grand is set to quietly challenge cultural cringe notions against anything Australian. Cultural icons such as Parliament House (which chose a black *Yamaha*) and the Opera House have not taken the plunge into this all Australian innovation fearing international performers may prefer the *Steinway* sound.

With a dream to give Australia its own make of piano again, at the top end of the market, Wayne Stuart designed and built, with the Newcastle Conservatorium, two 2.9 metre grand pianos with cabinets of 2000 year old, highly figured birdseye Huon pine with a full eight octaves (as opposed to the usual seven and a quarter) and threw in another foot pedal for good measure—all operating on a unique string coupling system that harnesses a longer note of greater volume, and a previously unknown clarity of tone.

While it is the unique mechanics of this innovative design that enhances the tonal clarity, the timbers employed in its construction suggest this revolutionary piano may become an extraordinary ambassador for Australia. Four of the five grands currently under construction have their all-important sound boards made from King William pine, air dried for 20 years, instead of the traditional spruce. Both spruce and King William pine transmit sound at around 5,500 metres per second. (Compare this with air at 0°C which transmits sound at 331.5 metres per second.)

The density of the cabinet timbers is also important as it must provide a rigid wall to reflect the vibratory energy. For this effect the Stuart piano relies on mature hoop pine. Extra strength is provided by hard epoxy glues which are used to laminate the 1mm thick veneers of Huon to the hoop.

The original Huon log recovered from peat measured 1000mm in diameter and was converted into 50mm tabletop slabs before Britton Bros of Smithton, Tasmania sliced it into veneer to ensure maximum recovery. With approxi-mately one cubic metre of Huon being used per piano, the Stuart grands also incorporate ebony and kingwood inlay with gold plated brass.

The Conservatorium is currently abuzz with activity on a batch of custom-made pianos veneered in *Toona ciliata* (red cedar), being peeled rather than sliced to retain colour and the integrity of the grain and *Acacia melanoxylon* (Tasmanian figured blackwood). Meanwhile in the west, the Kalgoorlie Arts Centre is already fundraising to bring the world to Kalgoorlie to hear a Stuart and Sons grand piano in a cabinet of rich Goldfields timbers. □

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