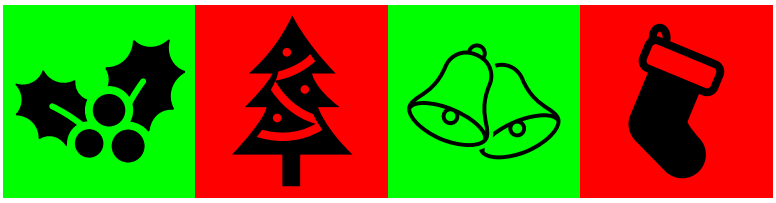
THE CUTTING- EDGE

MONTHLY NEWSLETTER

NO 20 CHRISTMAS EDITION 2020



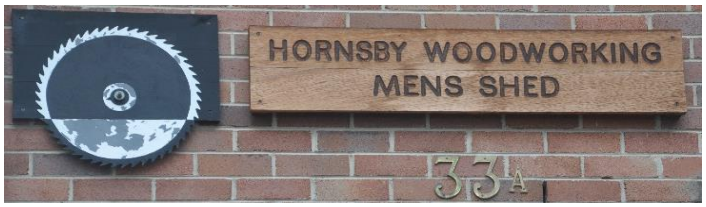
JOURNAL OF HORNSBY WOODWORKING MEN'S SHED INCORPORATED

SECRETARY, JOHN BARRETT. MOB: 0411089348

EMAIL: hwmssec@gmail.com

MAIL:33A SEFTON ROAD, THORNLEIGH NSW 2120

CLUB WEBBSITE: hornsbymensshed.org.au MEMBERSHIP: 181



THE NEW COMMITTEE

AGM VIA ZOOM

FROM YOUR COMMITTEE

First, we thank you for your support. Your endorsement of your committee allows us to plan the year ahead with confidence. Your new committee is:

President – David Tarran,

Vice President – Robert Plant,

Secretary – John Barrett,

Treasurer – Michael Kevin,

Members' Representatives:

David Boyd (Toys),

Tracy Knights (Publicity),

Ian McKay (Wood Turning),

Kevin Wallace (Membership).

If you have any questions, complaints or praise please do not hesitate in speaking to one of the committee members. We are all here to serve you and make a better Shed.

Jane Ruehmkorff is the new Welfare Officer. If you know any member who is ill or had an accident, please let Jane know hwmswelfare@gmail.com

We thank the out-going committee for their work over the last fifteen months especially during the COVID-19 period. Many people used the Shutdown period to clear out workshops and the Shed was inundated with

a huge number of woodworking tools and equipment. At one stage there was very little bench space available. Most of the donated items were sent to the Dural Men's Shed who had organised a collection to aid the many Men's Sheds affected by the Christmas/New Year bushfires. Also, during this period, a thorough clean-up of the Shed took place. However, in recent weeks both the internal and external timber racks had become untidy. Robert Plant has tidied up the internal rack and, with the help of Michael Hannagan, is tidying up the external rack.

Our annual toy donation was, despite the shutdown, successful. Many of the toys were made in the homes of many members and this enabled the Shed to make a significant donation of toys to both the Wesley Mission and the Salvation Army at Hornsby. We would like to extend our appreciation to two of our long standing "non-members" – Robert Evans' wife, Helen and Ron Koutchavlis' wife, Diane for their efforts in completing the cradles and prams. We always feel those items are the highlights of the toy donations. Thank you, Diane, thank you Helen. HWMS also made the annual $500.00 donation to both the Wesley Mission and the Salvation Army.

Despite the effects of COVID-19 the Hornsby RSL Club and Magpies Waitara once again made a grant to HWMS which enable the last committee to purchase ten 4" automatic blast gates for the dust collection system replacing some of the manually operated gates. John Talbot and Yuval Cohen are currently installing the new gates. Your committee, on Ian Raper's recommendation, has order an additional four 4" and one 6" blast gates. When completed this will replace all the manually operated gates.

Some members expressed concern that their personal data provided to HWMS was misused and now want to know what steps are being taken to prevent it happening in the future. Your committee is discussing with Ron Fellows about setting up a system in the cloud that is limited to read only for most committee members including the President. There will be more details after the next committee meeting.

Michael Kevin is working on adopting the Department of Fair-Trading Constitution. He is forming a committee to complete the works including the associated By-Laws. If you want more information on the DFT Model Constitution go to https://www.fairtrading.nsw.gov.au/associations-and-co-operatives/associations/starting-an-association/model-constitution.

With the relaxation of COVID-19 restrictions we anticipate it will not be necessary to make bookings in the New Year for Shed days. The microwaves are now back in action. Just make sure you maintain social distancing. Regarding the Bunnings BBQs your committee will review the situation in the New Year. It is anticipated the Members' Monthly Meeting will resume in the Shed on Friday 19th February 2021. It is also planned to add Zoom videoing to the meetings for members who are unable to attend.

The Shed will close be closed from Sunday 20th December 2020 (I.E.) last working day is, Saturday 19th December) to Sunday 10th January 2021 IE, first workday in 2021 will be Monday 11th January).

We wish you and your families a Happy, Safe and Healthy Christmas and New Year and look forward to seeing you in the New Year.

Name

Karen Yevenes

Email

u942503@uni.canberra.edu.au

Subject

Participation in Research regarding Arthritis & Tools

Comment or Message

Dear John,

I was in contact with Mr Philip Hirshbein last week, and Philip has kindly suggested I email you this week as I understand you are now the President of the Hornsby Men's Shed.

I am a mature age PhD student at the University of Canberra, and I live in West Pymble. I am currently undertaking my PhD research project on Arthritis and the use of tools with a focus area on Cooking, specifically the use of certain tools and the effects of using these tools on arthritic hands and hand posture. I would like to ask if I may collaborate with 7 male members of the Hornsby Men's Shed to participate in a cooking activity i.e., baking a cake using supplied ingredients and equipment (I am also recruiting women, should any of your female members be interested to participate. I have reached out to the Country Women's Association in Hornsby for their assistance too). All up, my research requires the participation of 7 men and 7 women.

Below is a short summary of the project aims and explains participant involvement:

Research Topic:
-My research involves looking at the Activities of Daily Living (cooking) and how persons with arthritis of the hands use kitchen tools, and I would like to approach men at your facility that may be interested in taking part.

Who:
-The participants will need to always consent to the research activities.
-The participants have diagnosis of early or mild (not severe) arthritis, aged 50 years or over, and can care for themselves quite well.

-They like cooking and can stand at a kitchen bench to prepare a cake recipe.
-Can speak and write in English?

Stages:
The research involves the following stages:
-Filming of participants' hands only whilst they undertake a cooking task.
-A semi-structured interview during the cooking process.
-A cooking-diary of 3 additional baking tasks (in their own time) with a questionnaire about using kitchen tools.
-A co-design process involving a questionnaire, where participants make recommendations about new design features.
-I will then go away and re-design the tools based on the participant input & feedback.
-The final stage involves repeating the cooking processes with a new group of participants to see if the new co-designed tools improve the experience of undertaking the activity.

Participants:
-Have the option of remaining anonymous throughout the research.
-The recruitment/baking process is due to begin in April 2021.
-All equipment and ingredients for the filmed cooking task are provided.
-A grocery voucher ($15) is provided to participants to purchase ingredients (to bake 3 additional cakes) plus $80 grocery/store voucher as a thank-you for time and efforts.
-The Hornsby Men's Shed contribution (in kind) is acknowledged throughout the research & included in all publications.
-All COVID & site risk assessments will be undertaken prior to any cooking activities being undertaken.

Where:
-Activities to be undertaken at Hornsby Men's Shed (provided an oven is available for baking of the cake?).
-Participants will cook the cake at the branch site (in a convenient space).
-Researcher will not interfere with cooking process, all cakes to be retained by Hornsby Men's Shed members.
-Participants may view their footage and outcomes of research at any point in time. They may also withdraw from the study at any point in time.

I am in the process of undertaking a Human Ethics Review Application to submit to the Human Ethics Review Committee at the University of Canberra, and no activities will take place without prior approvals from the university.

If you could let me know if this research may be undertaken with the Hornsby Men's Shed, that would be very much appreciated. The intention is to improve the Activities of Daily Living for persons with arthritis, and this is research that needs the input from those that have the condition rather than just guessing what would work best, hence it is an important study for people that enjoy making things with tools and the art of cooking!

If you have any questions, please feel free to contact me by mobile-0479 173 922-or via reply email. I look forward to hearing from you.

Kind regards,
Karen

Ms Karen Yévenes
B. Industrial Design Hons (UC)
B. Education (ACU)

PhD Candidate
Industrial Design-Faculty of Arts & Design
University of Canberra

Student number: u942503
Mobile: +61 479 173 922

****

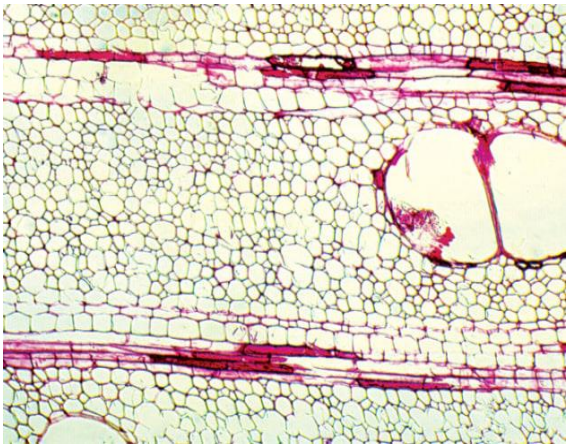
Dr Jugo Ilic

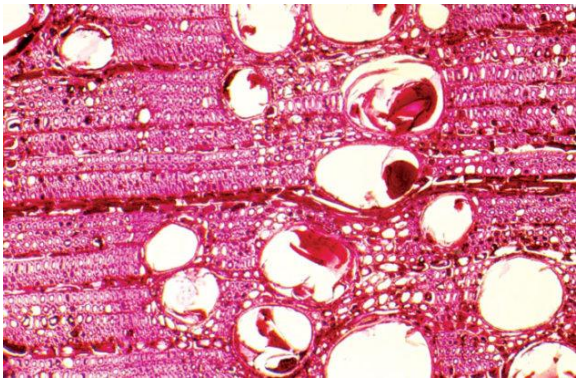
Different woods vary greatly in their properties; some are soft (red cedar—*Toona sp*.), others hard (red mahogany *Eucalyptus resinifera*); some are heavy (red ironbark – *E. sideroxylon*), others are light; one wood is flexible (*Corymbia maculata*), another brittle (cypress pine – *Callitris sp.*); some woods are more hard-wearing or resistant to decay (forest redgum – *Eucalyptus tereticornis*) than others (Douglas fir – *Pseudotsuga menziesii*), while some give off more (bull oak — *Allocasuarina leuhmannii)* or less heat (*Radiata pine*) when they burn.

In earlier stories I described how wood structure affects both the appearance as well as the physical and mechanical behaviour of timber. Wood structure is determined by the cell: type, distribution, size, and number and this can be used to explain many wood properties, but it is the thickness of the wood fibre walls that determines hardness and density.

The thicker the fibre wall, the harder and stronger wood turns out to be. For example, if we compare the density of balsa wood with jarrah using categories described previously, balsa is a 1-3 (160- 250kgm^3) whereas jarrah is a 9 (800- 900kgm^3). These timbers are at extreme ends of the range of density of commercial timbers – the bigger the number the higher the density.

Cell wall thickness is a determinant of relative density. The thinner cell walls of balsa wood (above) result in its lower density than jarrah (below) with its much thicker fibres and copious amounts of extractives in cell lumens. Both images are from very thin slices of wood cut from the end grain and stained. Scale: 30mm = 0.5mm.





The difference in their cell wall thickness can be seen clearly from the appearance of their fibres seen in cross-section (see above). In one way or another, density is related to most of the physical and mechanical properties which makes it a very practical characteristic of wood that is easy to measure.

How do dense woods behave?

The denser the wood is, the stronger and harder it is. Density is related to ease of machining, and the wear of soft metal tools. Abrasion resistance increases with density. Screwing and nailing resistance are similarly affected. Nailing into dry messmate for example, is impossible without predrilling, whereas nailing the lighter pine is no problem.

Movement of wood due to moisture change is generally greater and more noticeable with denser woods. Gluing high density sheets or veneers from denser timbers is difficult and often cannot be done because of the high swelling pressure that develops upon application of aqueous glues.

What determines wood density?

To get a better appreciation of the origin and importance of density let us look at the growth of the tree. Wood is a biological material derived from tissues made of cells which have cell walls composed of principally cellulose, other sugar-based compounds and lignin. In living trees, the fibres (tracheids) in softwoods are like pipes; they transport the sap along the stem and are filled by water. In hardwoods, the vessels fulfil that function, and the fibres are also filled with water. In relation to wood movement, not only are the vessels and fibres filled with water, but their cell walls also contain water. Another factor which affects the density is the amount of extraneous chemical compounds that are laid down in the lumen spaces and the cell wall. Typical examples of that can be seen in the heartwood of old pine trees or if we compare the sapwood and heartwood of e.g., jarrah. The coloured heartwood contains such extractives (photo 2).

Growth rings

The density of wood is an interesting property because it tells us how much carbon the tree allocates to stem construction (~50% of wood substance is made of the element carbon derived from CO2 from the atmosphere). Consequently, as the tree develops, depending on species, it lays down layers of different amounts of tissue during rapid growth in spring and summer than at other times of the year.

White Fir (*Abies concolor)*

Accordingly, wood density changes within the tree, during the life of the tree, between individuals and between species. Growth increments are prominent in trees grown in temperate regions, e.g., white fir (*Abies concolor*), so much so that the latewood can be two or more times as dense as the earlywood. Thus, the density of the latewood zone of the growth ring to a large extent tends to govern the density of the growth ring. The figure resulting from growth rings varies according to the plane of wood which is exposed on the faces of boards.

The growth rings stand out to varying degrees resulting from growth intensity and consequently the density of the wood produced locally is not uniform throughout. This can often lead to surface cracks along growth ring boundaries when surfaces are finished with dark coloured paint. Likewise, absorption of stains tends to be greater in low density woods and in earlywood zones compared to latewood.

On the other hand, in woods grown in tropical or less temperate conditions, there is a tendency for ongoing growth to occur and correspondingly the density is much more uniform from point to point across the tree radius, EG. brown pine (*Podocarpus sp.*), brushbox (*Lophostemon sp.*), merbau (*Intsia sp.*).

Sometimes the 'weight' of the wood is incorrectly referred to as density. Density is proportional to the amount of substance relative to a given volume. When we refer to wood density, the value is derived from the mass of the wood block divided by its volume (of the block or sample in bulk) using standardised units of kilograms for mass and cubic metres for the volume.

Although wood density is observed to vary within and between trees and species, the density of cell wall substance is remarkably consistent at 1520kgm^3. So why then is the density of balsa 160kgm-3 and jarrah 850kgm^3 if their cell wall has identical densities? The key to it lies in the reference to 'bulk'.

Wood fibres and other cells consist of a cell wall that has a central space (lumen). And even within the cell wall there are tiny capillary spaces usually containing water molecules and extractives. So, if we were able to take a block of say air-dry wood and squeeze it to so hard to collapse the lumen spaces to eliminate all the capillary spaces within the cell walls, the resulting material would become solid wood substance with a density of 1520kgm^3.

DENSITY	MOISTURE CONDITION	DEFINITION (=MASS/VOLUME)
Air-dry density (units kgm^3)	12%	both mass and volume–air dry condition
Green density (units kgm^3)	green (50-200+)%	both mass and volume–green condition as in the living tree
Basic density (units kgm^3)	cell walls fully saturated (green condition)	mass oven-dry, volume-green
Specific gravity (ratio-no units)	can be determined as required depending on the moisture condition of the wood	density of wood relative to that of an equal volume of water

Reference to wood density in publications and tables is made to its bulk property and generally in the air-dry state, but to complicate matters, since wood can contain differing amounts of water depending on its moisture content (from green to air-dry to oven-dry), the amount of water present will have an effect on the volume of the piece, and the combined weight and volume change resulting from the presence of water will affect the density. To overcome this problem, different types of density are often used for convenience as in the table above).

Many commercial woods of Australia, volume for volume is lighter than water and would float, but a proportion of species such as the iron bark, boxes and many gums sink in water where one cubic metre of the wood weighs more than 1000kgm^3. In practice air-dry density is because it is easy to measure as well as being of practical value.

Measuring density in wood

The simplest way to measure density is to machine off a sample of known dimensions (length, width, and thickness) measure the weight. With smaller specimens measure the dimensions in cm and the weight in grams this gives the ratio of the mass to the volume. Using units of cm^3 (cc) and grams that

FROM THE WOOD TURNERS

This photo shows 5 of the 30 pens made annually by our woodturners as Christmas gifts for our benefactors.
Two of the pens are made from Australian Red Cedar and the other three from Silky Oak. All are finished with multiple coats of CA glue sanding between coats with fine grit paper to give the gloss result.
These five pens were made by Colin Hunter and the remaining number are being made by other members now and feature equally spectacular Australian woods.

Acknowledgements

Hornsby Woodworking Men's Shed acknowledges the support provided by:

- the Hon Matt Kean, local state member of parliament for Hornsby
- the Hon Alister Henskens, local state member of parliament for Ku-ring-gai
- the Hon Julian Leeser, the local federal member of parliament for Berowra
- Hornsby Shire Council
- Hornsby RSL Club
- Magpies Waitara
- Westfield Hornsby
- Bendigo Banks, Turramurra, and Lindfield

- Bunnings Warehouse Dural and Thornleigh

- North Shore Timber
- Orangelime Web Design
- Coca Cola Amatil
- Bakers Delight Hornsby

Please support the organisations that support HWMS.