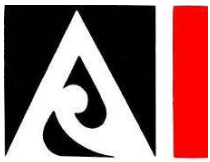
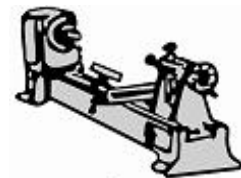


SPLINTERS

NEWSLETTER of the Christchurch Woodturners Assn. for June-July 2010



Aoraki
Polytechnic



Christchurch
Woodturners
Association Inc.

Coming meetings

- June:** This is our AGM meeting (brief). Then we will have our patron, Soren Berger, as demonstrator.
- July:** Details to be confirmed. We aim to have demonstrations by one or more of the graduates of the Aoraki course.

Show table

The topics for the next three meetings will be:

- April:** A piece that has been decorated or embellished in some way.
- May:** Something that is used in the kitchen. It could be a salt and pepper set, salad servers, a spoon, a spurtle or anything else for the kitchen
- June:** Something that can be worn as jewellery; e.g. ear rings, brooch, pendant etc.

We meet in the # 1 lecture Theatre of the former College of Education, now part of the University of Canterbury, Dovedale Avenue, Upper Riccarton on the **FIRST** Thursday in the month at 7pm.

Vietnam Charity. Please remember to support John Ryan in his bid to provide assistance to the Hoi-An Trust.

There is also a “Hands On” meeting in the Technology Room at Cobham Intermediate, Ilam Road, on the **THIRD** Thursday of the month at 7pm. The next Hands-On meeting is on Thursday 17th June.

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President’s Piece

Hello Members,

Another year has almost gone and our AGM has come upon us. It is pleasing to see by the nominations that other members are prepared to step up and assist in the operational aspects of the association. Take it from me it takes a while to settle into these roles, whether it is committee member or an office bearer. We all end up with simple tasks to share the load in the hope to benefit the membership.

Again welcome to those members who have recently joined our association. There were four at our May meeting, which is encouraging to say the least. We need new people with their fresh ideas.

The Aoraki courses are being strongly supported with a full complement again for the July course. A positive sign is the inclusion of two of our lady members. Keep it up girls we need a bit more balance to our membership. What I have noticed with the womenfolk who have completed the course is they are capable of very fine, delicate turning with an excellent finish. Must be something in their genes.

At the last committee meeting a discussion took place on whether the Association should look at having their own “clubrooms”.

There were a number of scenarios and suggestion put forward and the discussions were positive. It appears as though in the main there is support from those on the committee for our own “clubrooms”.

To support this bold step some of the reasons promoted were;

- our Aoraki tutors currently have to transport and prepare the equipment for each course day. This would be alleviated,
- having a base where members could go and use the lathes and equipment on a scheduled day[s],
- the equipment would be permanently set up for “hands-on-nights”, members could bring their turning problem[s] and have an individual tutor assist them on “hands-on-nights” with several lathes available,
- schedule and run demonstration days by touring tutors in conjunction with NAW,
- the associations equipment and assets would be in one place and not spread through the garages of accommodating members.
- There would be storage space for club wood for on-sale to members and for wood for use on the Aoraki courses’
- The club could provide and house other equipment such as a bandsaw, drill press etc.

These are just some of the issues that were highlighted which could be addressed if the Association had their own “Clubrooms”. After some discussion it was decided to set up a sub-committee to pursue the idea and look at some of the options that may be available. The number on the sub-committee was set at five, three from the current committee and two from the association membership. The sub-committee could, if they wished, second members with particular expertise for advice, or call for a committee meeting.

At this stage it is an ideas pot with all options being stirred about and if any member has or knows of a property, which they consider may be suitable, please contact one of the following: Celia Irvine, Noel Graham, Mike Foster. These are the committee members who have accepted the "Clubrooms" sub-committee role. The two other members will be co-opted as we progress. Any suggestions for these two people please also contact the above. That's all for this newsletter, my apologies in advance for non-attendance at the AGM but have a good one and most importantly keep our world "turning".

Ray Morgan
President

Meeting Report, April 2010

Tonight's **Demonstrator** was Rex Marshall, at fairly short notice, who showed us some of the tips and problems when embellishing wood items with pewter inlays. The choice of wood is important, as it has to stand the heat of the molten pewter. His choice for this project was elm.

For casting the pewter, Rex commented that he melted the metal in a stainless steel kitchen ladle, over an ordinary butane camp stove. He also commented that pewter is non-toxic, as it doesn't contain lead, the main constituent being tin. (Old pewter items may contain a little lead but it is now not permitted.)

At the beginning of his demonstration, he had a cylinder of elm about 50 mm diameter x 60, which had a spigot turned on the bottom end for chucking in the lathe. He had already drilled a hole about 8 mm diameter x 10 deep in the side of this cylinder, which he had filled with pewter.

He mounted the spigot of the piece in the chuck, and drilled it with a 10 mm drill to about 50 mm deep, then hollowed the inside to leave a wall thickness of about 5 mm, revealing the inside of the pewter insert. The lid piece had already had two pewter rings poured, one inside and one outside. He did not proceed further with this unit.

He now took a second specimen of elm about 60 mm diameter x 65 long, with a base spigot for chucking, and which also had a pewter insert in the side, as above. He chucked it on the base spigot, and drilled it with a drill about 10 mm diameter to about 60 mm depth. Then he made a spigot at the top end for the lid to fit on to. The piece of elm for the lid had already had pewter poured into circular grooves, each about 2 mm wide and deep, one inside and one outside, but with differing diameters so that they did not weaken the lid. The inside recess to fit on the box had already been bored to a chosen diameter, just less than that of the lid spigot on the box. With the box mounted with the base spigot in the chuck, and with the lathe running, he forced the lid against the top of the box, to burn the contact area lightly. Now, removing the box from the lathe and chucking the lid, he took light cuts off the burn mark on the lid until he got a good fit between box and lid.

Now with the box again in the lathe, it was hollowed out using a boring bar, working outwards from the central hole, to full depth. Then, with the lid in place, and supported with the tailstock centre, he finished off the outside of the box plus lid.

Next Rex made a jam chuck, in which he held the lid in order to face the pewter inserts, inside and out.

Comments: Ordinary turning tools cut through pewter very easily, but must be kept sharp; Rex demonstrated the technique he uses for tool sharpening, using diamond slips. He discussed sanding, saying that the turned pewter surface shows any scratches that remain, and therefore it is necessary to work through to the finer grits, beyond those normally used for wood. He uses grits up to #1200.

He gave some tips for making pewter inlays:

1. The wood must be able to stand the temperature of molten pewter.
2. The wood must be sound.
3. The wood must not shrink away from the molten pewter.
4. The wood must be dry and have no splits.

Show Table

Tonight's Show Table item was to be something suitable for the club's display table at the Interclub Fun Day. The winner was Robin Blowers.

(Report by Tom Dodd)

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Meeting Report, May 2010

Show and tell

Dave Caddy showed some paua shells that he has been polishing. He warns that the dust is terrible and carcinogenic, so wet grinding is essential. Dave also has successfully cut paua disks using a hole cutter.

Pat Jordan showed a hollow form made from smoke bush (Latin name is *Cotinus*). The wood is a very attractive yellow colour that is very slow to fade. The sap wood is a pale colour, but even small branches are mostly heart wood. Smoke bush is a small to medium garden tree (up to 6 metres and trunk up to 250 mm and is grown in gardens around Christchurch. Pat also brought in a sprig of smoke bush leaves to help members identify it. The autumn colours are very attractive; vivid red through orange to yellow. It is worth spying out any specimens in your neighbourhood so that if you see one being pruned, you know to ask for a piece. Even 50 mm branches are worth having for small items such as pens.

Demonstration – Dennis Monte

The main presenter for the evening was Dennis Monte who explained his methods for making the inlaid Celtic knot patterns that are very popular on his pens. Dennis gave some background on the ancient endless knots which date back to at least Roman times. He showed some PowerPoint slides illustrating his patterns and techniques. The patterns are made by inlaying strips of contrasting wood or other materials into slots cut into his square-section blanks. Other materials used for inlays include styrene (a white plastic costing about \$10 for 15 x 29 cm x 0.38 mm from hobby shops), black polyester resin, aluminium and brass.

Short knots are made with 45 degree cuts and long ones with 60 degree cuts. Short cuts would be essential for items such as bowls, but long ones can look better on pens. Dennis passed around his home-made cutting jig. He uses a table saw for cutting the slots in his blanks. The first cut is made almost right through; he aims to leave 0.5 mm uncut to aid handling. The

insert is then glued into place before the next cut is made and the process continues until cuts have been made from all four sides. Viewing the blank from the end, the order for the cuts is: top, bottom, right, left. Accuracy is important to get an even knot, so the initial blank has to be cut accurately on the table saw. Then the holes for the pen tubes must be drilled accurately through the centre.

Dennis also showed his simple sanding jig for sanding laminate slices that are too thick. The glue-up is done with PVA glue for wood pieces and good quality CA glue for metal to wood joins.

Then Dennis demonstrated turning one of his made-up blanks until the knot pattern appeared.

Next he showed us his technique for finishing with CA glue and boiled linseed oil (BLO). He frequently uses this for pens, but it can be used for other small objects as well. It is essential to have good eye and glasses protection (i.e. full face shield) and to run the lathe at slow speed. CA is spread with a finger in a small plastic pouch to avoid skin contact.

Options include:

- Just CA
- CA, then BLO
- BLO, then CA

He then demonstrated a fourth option: CA and BLO mixed. A sheet of folded kitchen paper was held under the work-piece. Oil was added to the paper first, then CA in the middle. This was spread using the paper at slow lathe speed. Then friction was applied with the paper until it became hot. Several coats can be applied with buffing done later, followed by polishing with EEE liquid wax.

Alternatively, oil can be applied first using the paper under the work-piece, then CA dripped onto the top of the rotating work-piece and spread by the paper.

Dennis also showed a home-made pen assembly jig which will take all types of pen kits. A copy of the drawing for this is at the end of the newsletter.

Finally Dennis showed a couple of pieces made out of old pins from a bowling alley. These are made of laminated maple from recycled flooring. They are very hard and have a life of about 18 months before replacement. Dennis currently has access to a supply for \$5 each.

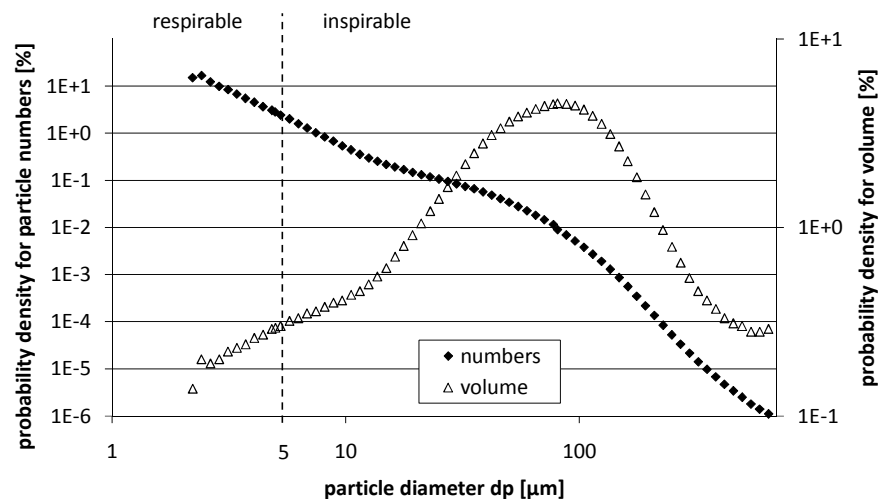
Presentation of research on dust extraction

Pat Jordan took advantage of the projecting technology now available in the meeting room to show a PowerPoint presentation of some recent research. This involved modelling of air flows and dust particle movement around a spindle being sanded on a lathe and the dust extractor port. The work was carried out by **Markus Juling** under Pat's supervision over the last summer. Markus is an Energy Engineering student from TU Berlin who did the project as part of his degree. The main concern is with respirable particles (less than 5 microns diameter) that can get past the body's defences and enter the lungs. They are invisible in low to moderate concentrations. Most visible dust is classed as inspirable and has a diameter greater than 5 microns. This is mostly filtered out by the nose.

The technique used was Computational Fluid Dynamics (CFD). The first step was to define a somewhat simplified geometry including the lathe, extractor port and the turner. The volume

is then meshed into a large number of tetrahedral cells that fill the space. Even with a simplified geometry, the volume needed at least 800,000 cells to give good results and was tested up to 2 million cells. The software then solves for the 3-directional velocity in each cell and can plot figures showing the flow pattern. Then the trajectories followed by particles released along the sanding line can be tracked. The end fate of each particle is determined: does it get extracted, remain in the air or collect on a surface including the turner's person. The particle size distribution assumed is shown on the following graph. It is based on experimental size distribution data obtained while sanding rimu with 100 grit sandpaper in an earlier project by Hannah Gundersen. The clearance rate (fraction of particles that get successfully extracted) was determined for a range of different setups: variations of extractor flow rate, spindle rotational speed, extractor distance from the work-piece and extractor position vertically and along the lathe.

introduction – particle size distribution



source: Gundersen, Hannah P. *The Dust Dilemma! Undergraduate Research Project*. Christchurch, New Zealand: Department of Chemical and Process Engineering, University of Canterbury, 2003.

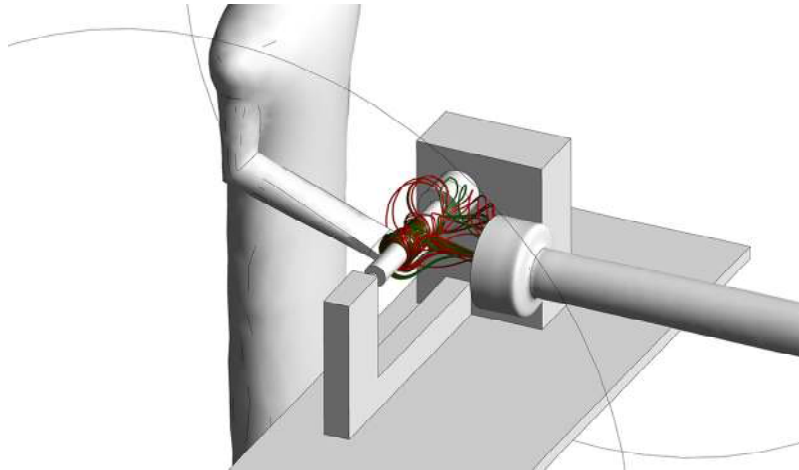
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Assumed particle size distribution based on the results of Gundersen for sanding rimu with 100 grit sandpaper.

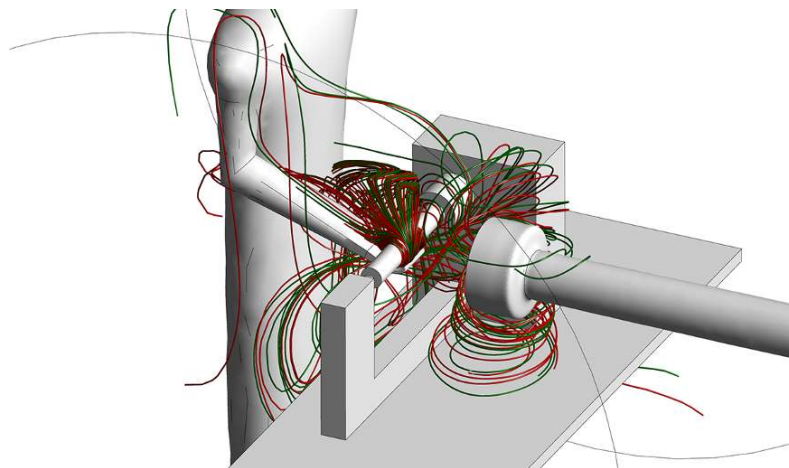
The results lead to the following general conclusions, some of which were obvious and some of which contributed to fresh insights.

- Higher air flow rates improve clearance of particles, at least up to a flow rate of 80 cubic metres per hour.
- Having the extractor port close to the work-piece improves particle removal
- Particle extraction is substantially better at low rotational speeds. This is another good reason for sanding at slow speeds, apart from reducing the risk of heat checking. See the later figures showing the particle tracks when sanding at 100 rpm and 1500 rpm.
- It is better to have the extraction port a little below the lathe centre-line. Having it above centre means that particles that are tending to follow around the spindle have to reverse direction to reach the extractor. Aim to have the extractor centre-line at the level of the bottom of the spindle
- It is better to have the extractor a little nearer the tailstock from the sanding point, rather than nearer the headstock. If it is towards the headstock, it tends to draw the

dust towards the chuck which then acts as a fan to disperse it. This should not apply if turning between centres.



Particle tracks when sanding at 100 rpm



Particle tracks when sanding at 1500 rpm

A printed copy of the PowerPoint presentation will be added to the club library.

Show Table

Sorry, I got sidetracked and missed recording the winner of the show table. Can someone please tell me so that it can be recorded in the next newsletter?
(Report by Pat Jordan)

Coming events: keep a watch on the excellent calendar on our website

Inter-club fun day This year will be in Timaru on May 22nd. There will be a report in the next newsletter.

Harihari Learn and Turn weekend will again be held at Queen's Birthday weekend. This promises to be the usual wonderful event. The guest turner will be Graeme McIntyre from the

Porirua area, so participants will be encouraged to try their hands at thin-walled turning and piercing.

2010 Australian Woodturning Symposium to be held July 14 – 18 in Brisbane. Details on www.tymba.com.au or talk to Graeme Trost. Please tell the editor if you are lucky enough to go – he would love a write-up for a future newsletter.

Symposium 2011 In the latest issue of Creative Wood, NAW have announced that the next national symposium will be held in Hawkes Bay on 14-16 October, 2011. The symposium held there in 2007 was an outstanding event, so start making your plans to attend and saving your pennies now!

Have you checked out our web-site lately? www.woodturning.org.nz

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Disclaimer: The views expressed in this newsletter are not necessarily the views of the Christchurch Woodturners Association or its committee.