IWG News

The Newsletter of the Island Woodturners Guild November 2022

About the IWG:

The Island Woodturners Guild meets from 1:00 - 4:00 PM on the 4th Saturday of each month (except for July/Aug) at the Central Saanich Senior Citizens' Centre, 1229 Clarke Road, Brentwood Bay, BC.

Visitors are welcome.

Executive Committee

President:
Tim Karpiak

Vice President:
Don Robinson

Treasurer:
Peter Pardee

Secretary:
Michael McEwan

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Hovan Baghdassarian
Virginia Lee
Marlene Speckert

Past President:
Steve Werner

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The IWG gratefully acknowledges the support of the following companies:
Artisan Wood to Works
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KMS Tools
PJ White Hardwoods
Richelieu Hardware

THE PRESIDENT'S TURN

We had a great demo from Gil Heise last month. Gil always pulls out the stops when he demos for us and it's always a great time. I hope everyone's made a least one Christmas ornament of some kind. I found myself in the shop making little lighted lanterns for the tree. I know that's not what Gil demonstrated but it did get me thinking about ornaments and motivated me to make one.

The meeting itself had a few technical glitches. It seems there's always something that doesn't go exactly as planned. But we keep learning and tweaking things. I appreciate the help that people bring to the meeting. Even just moving chairs helps a ton.

This month we will be having a remote demonstration from Texas! I point that out because it always amazes me that we have the technology to make it seem that the person is right there with us. It was also amazing to be with Glenn Lucas in Ireland last year when he presented for us. It was surreal to think that I was halfway around the world and yet so close. Best part was that you didn't see me doze off because I had jet lag. But it was only for a minute.

It's the time of year that craft sales start up. I think there's about 5 or 10 every weekend from now until Christmas. Some of our members participate in various ones. The one I went to this weekend was great and two of our members were in it. You always find something unique. If you have a chance, go to some. I'll send out an email if I hear of any of our members participating.

I hope everyone can come to the meeting on Saturday. As my son says, "It'll be a banger". I have no idea what that means but I think it means it'll be good.

Tim Karpiak

NEXT MEETING: SATURDAY NOVEMBER 26: 1:00

Our next meeting will feature a remote demonstration by Tod Raines on turning a *Bowl within a Bowl.*

This is a hybrid offering which will be available online as well as at our meeting hall.

A turner for almost 20 years, Tod's work reflects a unique blend of traditional and contemporary aesthetics.

The current president of the Dallas Area Woodturners, Tod has been a featured turner at SWAT, has delivered a host of demonstrations at clubs throughout North America and England and has authored a number of articles in *More Woodturning Magazine*.

DUES PAST DUE

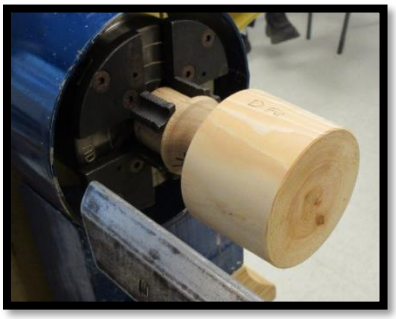
The dues for this year (2022-2023) are past due. If you have not completed the form on the website and paid your dues by November 30th you will be dropped from the membership list and removed from the mailing list for the newsletter.

If you are unsure whether you have paid your dues, you probably have not and should send in your payment immediately. (Alternatively, you could contact Tim Karpiak or Peter Pardee)

OCTOBER RECAP

Gil Heise provided an excellent demonstration on turning hollow form ornaments. Predictably, his demonstration made use of a wide variety of homemade tools and jigs. The following are the highlights.

A. TURNING THE BODY



He begins with a small blank of Douglas Fir. To save wood, he drills and glues a small dowel which is then mounted in his spigot jaws.

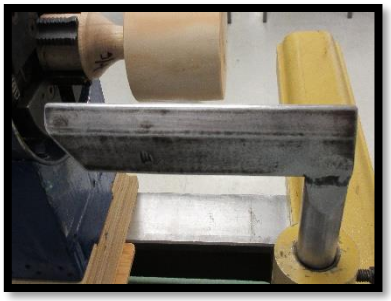
He turns the blank to a cylinder leaving ample clearance at the headstock end (left).

A frequent turner of softwoods, he noted the problem of significant tear out, especially when turning near the centre. Sharp tools are essential, and he turns at a relatively high speed (2000 rpm).

He marks a centre line and then shapes the blank using his favourite tool - a 3/8” spindle gouge with a sharp point.

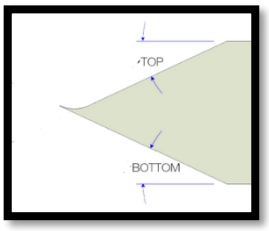
For these ornaments, he finds an oval shape more attractive than a sphere.

On those occasions where he has the live centre engaged, Gil uses a custom-made “half-rest” which provides clearance from the tailstock (left).



To clean up the surface he first uses a negative rake scraper. He has two of these in a skew shape for left, and right hand, scraping.

Sharpening a Negative Rake Scraper



For a finishing cut, a burr must be created on the tip of the scraper (right – exaggerated). While the burr is rarely visible, it can easily be identified by touch. Instead of scraping wood, this burr severs wood fibres akin to the action of a gouge which produces a finer surface.

Most turners use a grinder to create the burr. The rotation of the grinding wheel deforms the steel and causes a burr to form at the tip of the lower bevel. ***For this reason, the bottom bevel must be ground last to create the burr.***

The life of the burr is measured in seconds. While it will depend upon the density of the species, the burr on M2 steel will likely last no more than 30 seconds and on CPM steel perhaps up to a minute. If you cannot feel the burr or the tool is simply producing dust, it is time to re-sharpen.

For a quick re-sharpening, you can use a diamond hone or a burnisher. As the burr created by a hone is relatively weak, Gil prefers to use a homemade burnisher which consists of a carbide router bit shank mounted in a handle.

You can generally use these quick techniques one or two times before you will need to return to the grinder.

For instruction on burnishing a NRS, check out the following: https://www.youtube.com/watch?v=FAGXHpnrkcA

He then sands the piece to 400 using *Mirka Abranet*. As he turns primarily small objects, he purchases the sample pack. (LV: $14.20).

He burnishes the turning using a synthetic 000 steel wool pad by Mastercraft.

I could not find these in a local Canadian Tire store, and they are no longer listed on their website. You can find comparable pads from Norton at Home Hardware ($4).

He then applies a finish to the outside.

Note: Aluminum Paint

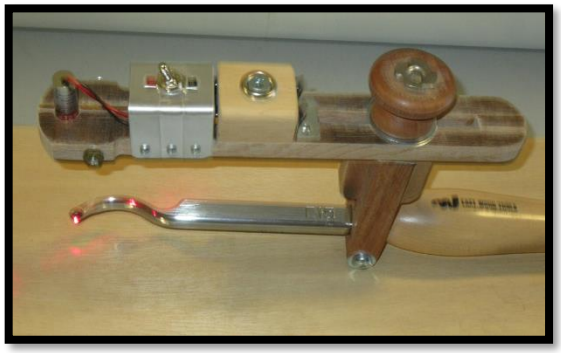
While Gil uses a variety of finishes, he has recently experimented with aluminum paint on fir turnings. Once the piece has been sanded, he uses a wire brush to wear away the sapwood before applying this paint for a striking effect.

B. HOLLOWING

He begins by drilling a hole with a Forstner bit sized to the dimension of the dowel. (In this case 7/8”).

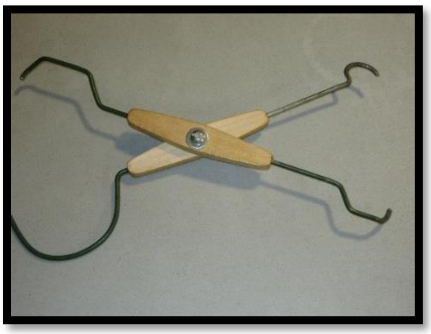
For hollowing, he uses an *Easy Wood Mid-Size Hollower #3* (KMS: $185).

However, he found that it was overly aggressive and difficult to control when seeking a thin wall thickness (< 1/8”). Accordingly, he added a wooden post and knob for enhanced control, and a laser to mark the location of the cutter.



And, as he found it difficult to hold securely on a conventional tool rest, he uses a custom rest which has a large flat bearing surface.

To hollow the shoulder area, he uses a small cutter made from an Allen wrench mounted in a flat handle which rides on the custom rest noted above.



To measure wall thickness, he uses a homemade double-ended caliper.

He recommends soft steel as it is easier to bend and emphasized that the pivot joint must be exactly 1/2 way from each end.

It is essential to periodically remove the chips to avoid the cutter getting jammed inside which will almost inevitably destroy the turning.

While most members use either a vacuum or compressed air, for some time, Gil used a piece of neoprene hose and lung power to blow out the chips. This practice ended when he inadvertently inhaled!!!

Prompted by an analysis of fireplace bellows, Gil made the “Puffer”. He installed a flap valve inside a piece of ABS pipe which allows air to blow out but prevents air being pulled in.

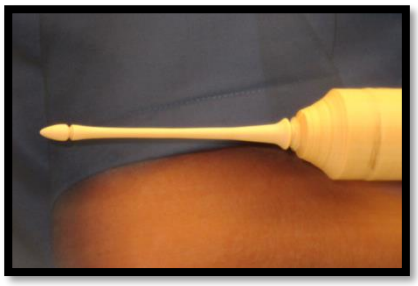
C. THE FINIAL

Sparing no expense, Gil uses a short length of spruce from a 2x4 for the finial.

He mounts this in his spigot jaws and **lightly** engages the tailstock. Too much pressure will bow the finial as it is thinned.

He uses a 3/8” spindle gouge with a relatively sharp point to shape the piece.

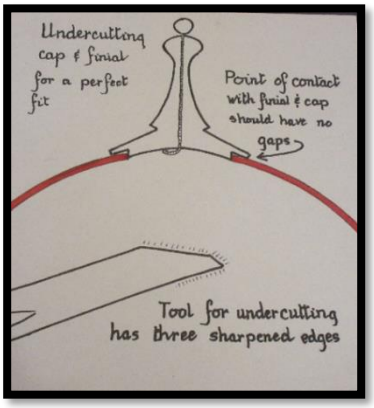
With the tailstock removed, he turns the finial in stages, stopping to sand and burnish each portion before proceeding.



He is careful to support the wood when doing so.

For sanding in narrow areas, he wraps sandpaper around an appropriately sized dowel.

As illustrated in this drawing, he undercuts the inside rim of the finial base to avoid a gap with the body. For this task, he uses a custom tool with 3 sharpened edges.



For the finish, he uses a mixture of equal parts tung oil and varathane (with a bit of thinner to ease application). He then polishes it with a clean paper towel. He noted that you should never use fabric which can catch and pull your hand in.

D. FITTING THE FINIAL

He makes the base/tenon of the finial slightly oversized and then enlarges the hole in the body as needed.

To accomplish this, he uses a set of fids. One has 4 hacksaw blades glued in lengthwise while the other one is wrapped in coarse sandpaper.

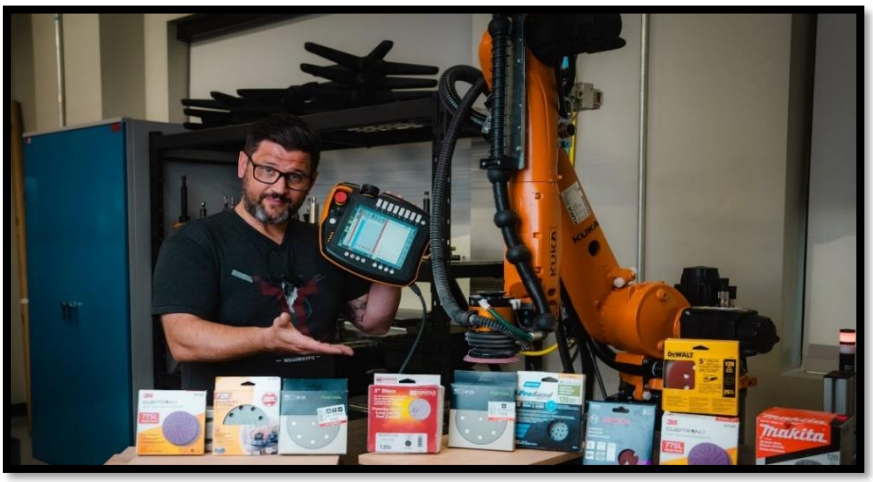
E. THE CAP

The cap is also turned from spruce and as is the case with the finial, the base/tenon is slightly oversized. A 1/16” hole is drilled for the hanger.

While most turners use small eye screws for the hanger, Gil prefers to make a braided wire hook.

He bends over a short length of 20-gauge brass wire and mounts this in a hand vice. With the vice secured, he installs a nail with a 90-degree bend at the tip (left) in a drill and slowly twists/braids the wire.

THE BEST SANDPAPER?



Turners are commonly advised to "*use sandpaper like someone else is paying for it*". Apropos this advice, *KM Tools*, a U.S. vendor of woodworking products, conducted a test of 19 leading brands of sandpaper including 3M, Klingspor, Mirka, Norton, Diablo and Festool. The test was designed to determine durability of the paper – how much cutting it can do in a fixed time – and then compare the result with the cost of the product to determine the best value.

(You can find a video detailing the test at: https://www.youtube.com/watch?v=NZDCRFi8dKY)

To determine durability, they tested the friability of each brand which means the breakdown of an abrasive when heat or pressure is applied. Highly friable sandpaper (good) breaks down easily, constantly creating new, sharp surfaces which removes wood faster. A low friability abrasive (bad) means it becomes dull more quickly and ceases to cut.

Methodology

They tested 5" sanding discs with a rating of 120 grit.

To ensure consistent speed and pressure (10.78 pounds of force), the test was done using an industrial robot fitted with a random orbital sander (ROS).

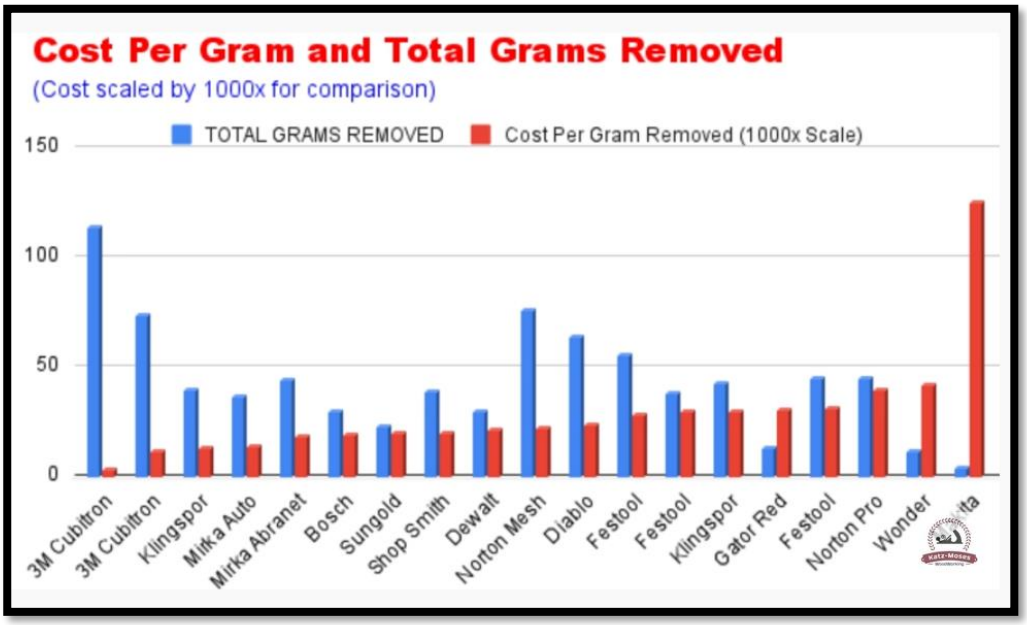
Each disc was tested for five 5-minute intervals on boards of red oak. The boards were weighed before and after each interval to determine the number of grams of wood removed. To determine the best value, the cost of each disc was divided by the total grams of wood removed to produce the cost of grams removed.

The Results (Best to Worst)

(The products identified by dark blue use ceramic abrasive while the others use traditional aluminum oxide.)

Brand	Cost Per Gram Removed	Total Removed
3M Cubitron Mesh	$0.0036	114
3M Cubitron	$0.0114	74
Klingspor PS77	$0.0133	40
Mirka Auto Net	$0.0142	37
Mirka Abranet	$0.0182	44
Bosch	$0.0196	30
Sungold Abrasives	$0.0199	23
Shop Smith G2 Tech (?)	$0.0200	39
Dewalt	$0.0215	30
Norton Mesh Power	$0.0224	76
Diablo Sandnet	$0.0236	64
Festool Granat	$0.0286	56
Festool Granat Net	$0.0300	38
Klingspor ps29	$0.0300	43
Gator Red Resin	$0.0307	13
Festool Rubin 2	$0.0311	45
Norton Pro Sand Multi Air	$0.0400	45
Wonder Weave/ Pro Net	$0.0417	12
Makita	$0.1254	4

The following chart shows the results in an easier to compare, bar format.



The Winner

3M Cubitron Mesh (proper name *3M Xtract Cubitron II Net Disc*) was the winner by a significant margin. Not only did it remove the most wood (114 grams vs the next best at 76 grams) but did so at a cost of only $.0036 cents/gram vs $.0114 cents for the next cheapest.

This product differs from traditional sandpaper in two respects: type of abrasive and backing.

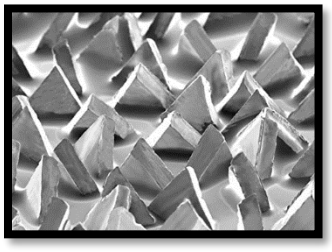
a. Abrasive

For many years, the most popular abrasive on high-quality sandpaper has been aluminum oxide (AOI). It is very durable, highly friable and is relatively inexpensive.

However, in recent years, some manufacturers have begun to use synthetic ceramic (left). The most common one is alumina ceramic which is made from bauxite ore.

This material has been used for decades in a variety of products including satellites, lasers, microwaves, skate blades and armour plating. It has also been used as an abrasive for sanding metals (it is 3 times harder than stainless steel) and is more heat resistant and durable than aluminum oxide.

In their advertising "bumf", 3M claims that their "*triangular shaped ceramic mineral is designed to slice through the [wood] substrate, rather than gouging or "plowing" like conventional abrasives, resulting in a disc that cuts up to 2x as fast and lasts up to 4x as long as conventional abrasives*."

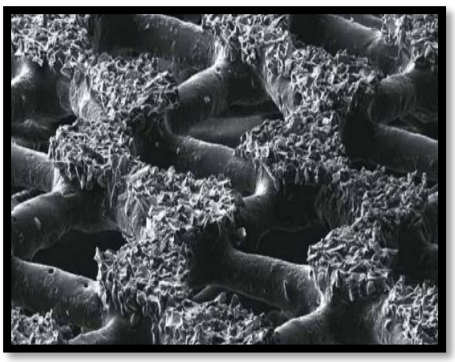


Leaving aside the precise numbers, the claim of superior performance for ceramic abrasive appears to be borne out by this test. Ignoring cost, in terms of total amount of wood removed, 4 of the most efficient papers were ceramic.

b. Backing

For years, the standard procedure to produce high quality sandpaper has been to apply the abrasive to flat sheets of paper, cloth or synthetic material using resin and heat.

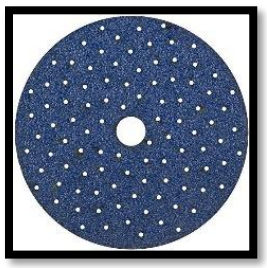
Roughly 20 years ago, Mirka introduced *Abranet Mesh Sanding Discs*. In a radical departure, the abrasive was bonded to a dense network of polyamide fabric threads. The open weave structure not only meant a significant improvement in dust extraction but also improved durability as there was virtually no clogging of sawdust which can lead to overheating and abrasive breakdown.



Mirka's patent has now expired, and a handful of manufacturers have begun to offer their own mesh discs including the *3M Cubitron Xtract Mesh* (left).

The impact of this backing appears significant. The second-best performer in the test was *3M Cubitron* which also uses ceramic abrasive, but the backing is conventional "paper" with punched holes (right)

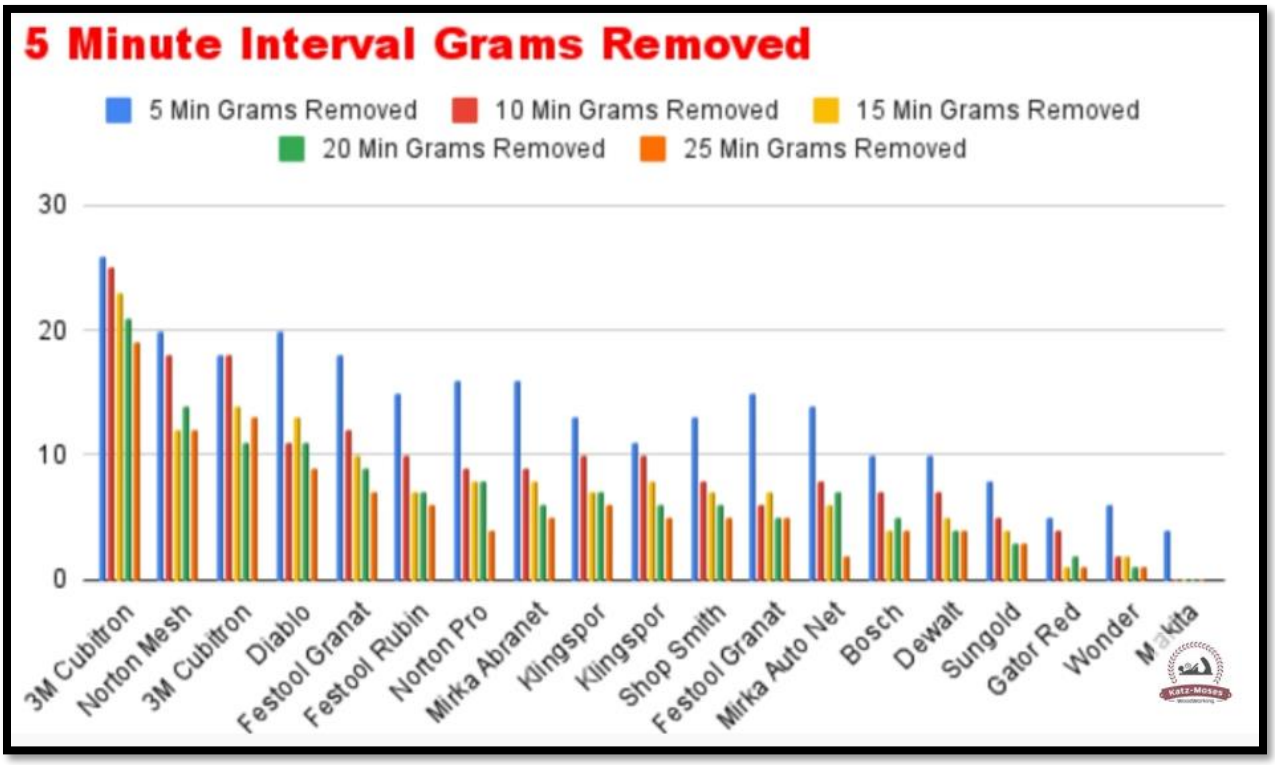
The difference in performance between these two products is striking. The mesh product removed 114 grams as compared with 74 grams for the same abrasive on a conventional backing.



This may also explain the relatively average performance of Norton *ProSand Multi Air* (left) as it uses ceramic on a conventional backing with multiple holes rather than a mesh.

Comments

1. In the test, KM also considered longevity as another measure of durability. The following chart shows the amount of wood removed for each 5-minute sanding interval.



In the **5th interval**, the *3M Cubitron mesh* removed a total of 19 grams. This was matched only by the *Norton Mesh* and the *Diablo*, in their **1st interval**. Thereafter, the efficiency of these two as well as all others significantly declined. For example, while the *Norton Pro* and the *Mirka Auto Net* performed very well in the first 5 minutes (which boosted their overall "score"), they removed very little wood by the 5th interval.

2. It is important to note that this test was performed with the ROS connected to a dust collection system. Hence, the sanding dust was immediately removed from the surface which meant reduced heat buildup and abrasive breakdown. The level of dust extraction for turners using 2" or 3" sanding discs and a dust collection hood will be far less efficient, which will likely reduce the performance of both mesh and conventional discs. However, the relative performance may only change slightly.

3. Given the result, there is little doubt that major sandpaper manufacturers will soon be offering their version of ceramic paper. In fact, Norton has recently responded by introducing its *Dry Ice A975* paper.

It has a seeded-gel ceramic abrasive with a stearate coating designed to minimize loading. While it does not have a mesh structure, the paper backing is latex-saturated, and fibre reinforced to provide strength and flexibility.

3. Other Formats

Obviously, turners will have little interest in ROS discs and will be looking for conventional (9“x 11”) sheet paper as well as 2” and 3” discs.

a. Sheet Paper

The 3M website makes no reference to sheet paper, and, with one exception, I was not able to find any manufacturer of ceramic sheet paper in North America. That exception is *Gator Ceramax* which is available on Amazon. However, one may want to exercise some caution given the very poor performance of its *Red Resin* AOI paper on this test.

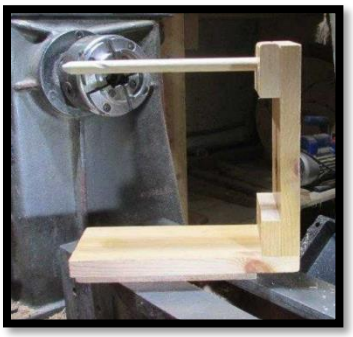
b. Discs (2” and 3”)

The only ceramic discs I could find in this size are the new *Norton Dry Ice 975.* And the only source I could find for these discs is the well-known *Sanding Glove* in the U.S.

https://www.thesandingglove.com/Norton-Dry-Ice-Ceramic-Discs.asp#Groups

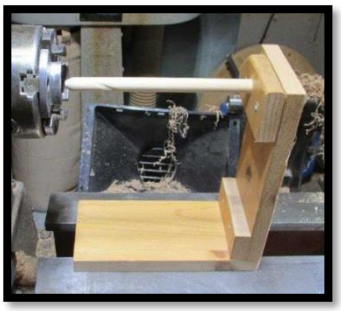
They offer Multi-Grit Assortment Packs (2”/30 discs: US$14.95 or 3”/30 discs: US$19.95) or Sets of Individual Grits (2”/50 discs: US$20.50 or 3”/50 discs: US$26.95).

GRAEME EVANS' JIGS

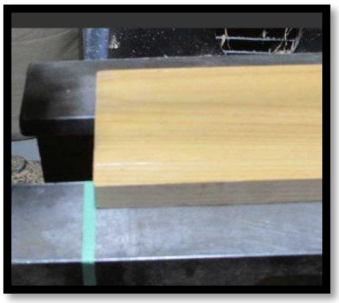


This is the jig that Graeme uses to measure the thickness of the bottom of a turned piece (and to avoid turning a funnel).

The height of the dowel is set to the centre of the drive centre and the end of the dowel is perpendicular to the front edge of the base. A block of wood on the underside of the base secures it between the ways.

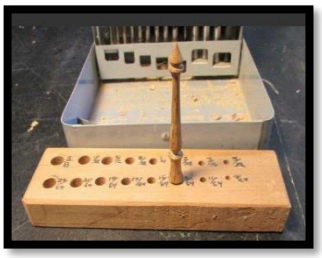


He lines up the end of the dowel with the face of the chuck jaws and marks the position of the jig with masking tape on the ways.



When the dowel is engaged with the turning, the distance between the masking tape and the front edge of the base indicates the thickness of the turning.

For years Graeme would make a finial and try to cut the tenon to match a hole drilled in the top of the box. After many frustrating attempts to match sizes, he turned the task on its head by turning the tenon and then matching this to the size of the hole.

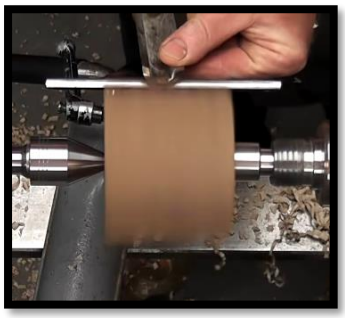


To accomplish this, he drilled a set of holes into a piece of hardwood and uses this template to determine the appropriate drill bit size. Simple but effective!

TURNING FRUIT

Harvey Pfluger recently turned this maple apple. While there are a variety of ways to complete this turning, Harvey opted to use the method favoured by English turner, Jason Breach.

The following is an outline of Jason's method.



He begins with a hardwood cube – in this case 3" – mounted between centres.

The blank is rounded to a cylinder using a spindle roughing gouge, and a parting tool is used to create a spigot.

The blank is mounted in a chuck, and he uses a small bowl gouge with a fingernail grind to shape the top sides of the apple and the "indent" for the stem.

He switches to a small spindle gouge to clean up the indent.

A skew is used as a negative rake scraper to blend the top surfaces.

The bowl gouge and spindle gouge are then used to shape the bottom of the apple. A picture of your favourite apple shape will provide a useful aid.

***Note**: A 3" square block that was 3.5" or 4" long would provide safer clearance from the chuck jaws.*

He sands the outside to 600 grit and with a Jacob's chuck in the tailstock, drills a 3/32" hole in the top for the stem.

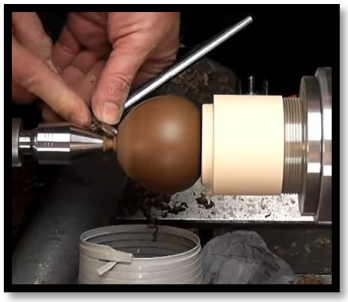
He applies a finish to the piece and then removes the blank from the chuck without parting it off.

To finish the bottom of the apple, he uses a custom chuck made from scrap wood.

With the scrap mounted in the chuck, he turns a concave shape on the face matched to the size of the top of the apple. He then drills a screw hole in the centre.

These two photos show the chuck made by Harvey.

The apple blank is secured to the chuck using a screw in the stem hole. The chuck is installed on the lathe and the tailstock is engaged.



He shapes the bottom of the form and removes all but a thin nub of material which is removed with a chisel. He sands the turned area and applies a finish.

He then buffs the piece.

For the stem, he mounts a small piece of contrasting wood in spigot jaws and turns it to a slight curve.

He then sands the top at an angle and secures it in the turning with a drop of glue.

The following video shows the process in detail as well as instructions for turning a pear: https://www.youtube.com/watch?v=td6dQBL9GH0

WOMEN IN TURNING

Women in Turning (WIT), a committee of the AAW, is "*dedicated to encouraging and assisting women in their pursuit of turning, sharing ideas and processes to further member's skills and creativity, and increasing participation of women in the field of woodturning."*

It has several programmes including **WIT Presents** which is a series of webinars featuring noted women artists. Rather than a demonstration, these events provide details on the artist's career, turnings, and inspirations.

If you are an AAW member, you can view past videos at: https://www.woodturner.org/Woodturner/WIT/WIT-Home-Page.aspx?WebsiteKey=c9100f02-c77e-4177-a9bc-7d3eb0216238&hkey=7f6a65b2-ec98-472f-a7b6-2ac573f7258d&New_ContentCollectionOrganizerCommon=7#New_ContentCollectionOrganizerCommon

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KMS TOOLS AND THE ISLAND WOODTURNERS GUILD

If you shop at KMS Tools, you may want to sign up for a KMS Club account. There is no cost involved and you will save money on your purchases. Bear in mind that this is NOT a charge account.

KMS Tools also has a program called Group Rewards which assists organizations such as our Guild. Through this program KMS contributes a small percentage of members' purchases to an account in the Guild's name. The funds in this account are used by the Guild to purchase items such as chucks, jaws, supplies needed for workshops and Gift Cards used as prizes.

In order for your purchases to count toward this program your KMS Club account needs to be connected to the Guild Group rewards account. On your next visit to KMS, before the cashier rings through your purchases, please ask that they "confirm that your account is linked to the "**Island Woodturners Guild Group Rewards account**" (**NOT** the Island Woodworkers Guild). If not, please ask them to link to it.

DECEMBER BREAK

The next meeting (and Newsletter) will be in January 2023.

PARTING OFF

Many thanks to Harvey Pfluger and Graeme Evans for the suggested topics and the members of the Executive for keeping us going. A special thanks to Gil Heise for a great demonstration and a mind-boggling array of jigs and homemade tools!

CONCLUDING THOT