IWG News

The Newsletter of the Island Woodturners Guild May 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

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THE PRESIDENT'S TURN

As most of you know, I was at Glenn Lucas' woodturning center in Ireland during our last guild meeting. From the feedback I've received the demo was very well received. I was lucky enough to stick around for a five-day workshop that started the following Monday. There were 6 other participants (3 from the U.S., 2 from France and 1 from Denmark. His workshop is absolutely first class. Every person had a large Vicmarc lathe and a full set of expert tools and accessories. And as you saw during the demo, Glenn is an amazing instructor. I took away ideas and techniques that will definitely make me a better turner.

We started the week by turning a green block of Ash into a rough bowl. The following days included 2 bowls, a platter and a square-edged bowl all out of Irish Beech. These were my efforts.

Glenn and his wife, Cornelia, are amazing people and were so welcoming to all the participants. I could write pages on this experience. Suffice to say I would highly recommend this to everyone. You'll never forget it!

See everyone at the meeting on Saturday!

NEXT MEETING (IN PERSON + ZOOM): SAT. MAY 28: 1:00 p.m.

Please Note: This next meeting will be **in-person** at our meeting hall in the Saanich Seniors Citizen Centre in Brentwood Bay. Masks are optional and those who wish to wear them are encouraged to do so. However, it is understood that some members may still be reluctant to attend and accordingly, the meeting **will also be available on Zoom**.

The meeting will begin with a brief Annual General Meeting which will include the election of a new Executive.

This will be followed with a presentation by Tim Soutar on Finishing which will cover preparation as well as various finishes.

The Show and Tell session will include the results of the Spring Challenge which was to create a turning using wood that was obtained from Phil Cottell. As Tim indicated in his email, we will be joined by Donna Cottell.

If you are unable to attend in person, please forward photos of your turning(s) to Virginia (remoteva@gmail.com) no later than Wednesday May 25th. Alternatively, you could try to use your computer camera to show your turning from your home.

APRIL RECAP

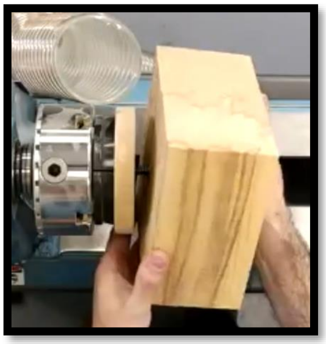
Glenn Lucas provided an excellent demonstration on how to turn a square edge bowl. The following are the highlights.

(Note: Some of the photos are from other sources.)

1. The Blank

He began with a blank of spalted beech that was approximately 7” square and 4” thick. He indicated that you should make the blank as square as possible.

He **always** checks a blank to see if there are any potential dangers such as loose knots, cracks, or inclusions. While the blank was sound, he did note that the spalted areas (right-arrow) likely contain a considerable amount of silica. As this will dull tools very quickly, this meant he would need to sharpen more frequently.



While a faceplate would provide more security and less vibration, it would be difficult to ensure that the plate was precisely centred. Accordingly, he used a screw chuck mounted in his 4-jaw chuck. As the threads are longer than required, he uses a plywood donut to shorten the bite.

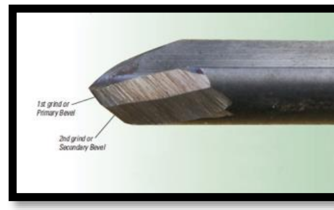
2. Initial Shaping of Bowl

For rough shaping he uses a 5/8” bowl gouge with a 55-degree bevel.

Secondary Bevel

Glenn turns a secondary bevel on all his gouges. By way of explanation, when turning a concave surface, such as the inside of a bowl, there is a danger that the heel of the tool will contact the wood. This contact may compress the fibres (which will be difficult to remove) and/or cause the cutting edge to move away from the surface producing tear out. The deeper the bowl, the tighter the radius at the curved transition between the sidewall and the bottom will be, and thus the greater the risk.

To guard against this, the common response is to grind away a portion of the heel to create greater clearance resulting in what is known as a secondary bevel. (The term is somewhat misleading as it is never used for cutting.)



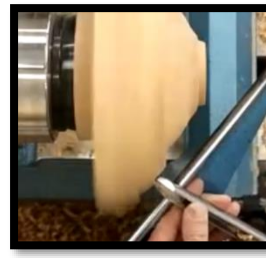
Keep in mind that a secondary bevel means a narrower primary bevel which in turn means less control. Unless you are turning very tight concave curves, new turners should exercise some restraint in how much steel is removed from the heel.

For the initial shaping, he began at what will be the bottom of the bowl taking very light cuts with the lathe at 950 rpm. As he experienced considerable "bouncing", he increased the speed to 1000. Since he was turning mainly "air", the faster speed helps to reduce this.

He also noted that the gouge should be pressed down onto the tool rest and not into the wood. Otherwise, it will create more bounce.

***Tip**: A major challenge of this piece is to avoid chipping out the corners which requires a relatively fast speed, very light cuts, and slow tool movement. To help develop this skill, he recommends taking practice cuts throughout the roughing process, stopping frequently to check how much "breakout" you are getting.*

He continued to rough shape the outside of the bowl portion using a push cut and taking very light passes.



He stopped roughing out at least 1/2" from the corners and returned to the bottom of the turning to create a tenon for mounting in a 4-jaw chuck.

3. Turning the Tenon

He used a pull cut to true up the base and then marked the location of the tenon. He aims for a height of 1/4" and a diameter that leaves roughly a 1/8” gap between the jaws.

Starting at the outside of the blank, he makes a series of “stabbing” cuts aimed towards the headstock. When he nears the tenon mark, he uses a pull cut to remove the resulting ridges.

As his chuck jaws are dovetailed, he uses a diamond scraper which matches the angle of his jaws to finish the tenon to the desired diameter.

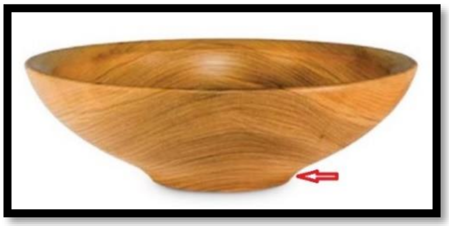
He recommends using a ruler to ensure that the shoulder area is flat so that it will securely fit on the jaw edges.

> ***Tip**: Always mark the centre of the tenon to provide an important reference point when it comes time to remount the turning to remove the tenon.*

4. Final Shaping of Bowl

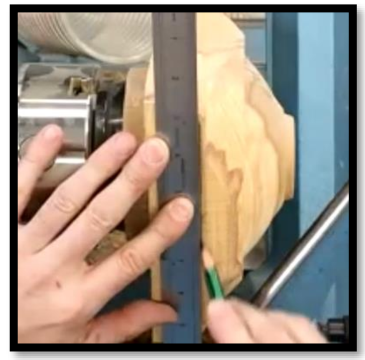
Once the tenon is formed, he returned to shaping the outside of the bowl.

He first marks the diameter of the base. As a rule, he favours a base which is roughly 1/3 the largest diameter of the bowl (excluding the rim).



Once he has removed wood to the intended diameter of the base, he makes an ogee at bottom of the side (left). This is a feature which he adds on all bowls.

With the bowl nearing finish form, he marks where the top of the bowl will meet the rim. In this case, he opted for a mark approx. 1.25" down from the top of the blank.



He also decides on how wide he wants the rim in order to determine the diameter of the bowl at the intersection. In this case he suggested 3/4" to 1” from the rim to the bowl.

He then completes the turning of the outside of the bowl portion using a 1/2" bowl gouge with a 45-degree bevel.

5. Turning the Rim

The first step is to use a pencil on the tool rest to check whether the 4 corners are in alignment. If not, he identifies the lowest corner and uses this one to mark the intended thickness of the rim which in this case was 1/4".

For turning the underside of the rim, he recommends increasing the lathe speed (1300 rpm) and reducing tool speed while taking very light push cuts. For the finish cut, he shifts to a 1/2" bowl gouge.

Using a push cut means that he cannot get right into the corner of the intersection of the bowl and rim. There are two options to deal with this. He could use a push cut going "downhill" or an "uphill" pull cut. He opted for the latter taking very fine cuts with the side-wing bevel "gliding" over the wood.

He then uses a shear cut to smooth the outside of the bowl. The cut is made with the left wing approximately 1/8" from the tip.

He drops the tool handle, glides the bevel onto the wood and then slowly rotates the tool until the cutting edge engages.

Honing and Shear Cut

Sharpening a tool produces a fine burr on the cutting edge. When shear cutting, Glenn finds that the burr interferes with the cutting edge of the tool and tends to produce sawdust rather than fine shavings. For this reason, he hones the inside of the flute to remove the burr.

You can use a round or half-round diamond hone (LV: $13) or a sheet of 3M Micro-Abrasive (LV: $5) wrapped around a rod. In either case, a few light passes will suffice.

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6. Sanding

a. Equipment

For power sanding, Glenn uses foam sanding pads which he purchases from a Swiss manufacturer. Available in 2” or 3” sizes and medium or soft density, they have a Velcro face which will hold complementary sandpaper.

Sanding Pads

Most similar products in North America consist of two parts: a backing pad (sometimes called a mandrel) and an interface pad.

Examples of the former that are available in both 2” and 3” include the Skelton Backing Pads (LV: $30/$40) (left) and the Sanding Backup Pad (Vinces WoodnWonders (US$4/$5) (right).

While sandpaper can be attached to these, over the years many turners found that they were too dense for many sanding operations and the Velcro tended to fail if they were subject to high heat because of high speed or vigorous sanding.

As they were relatively difficult to repair and expensive to replace, manufacturers responded with “disposable” interface pads. Available in firm, medium and soft densities, they have Velcro on both sides for mounting on the backing pad and thus protect its Velcro face. (Vinces WoodnWonders (US$2.50).

Glenn cuts his own sanding disks, using sheets of Velcro-backed sandpaper and a punch.

Sanding Disks

While you can purchase precut 2" or 3" sanding disks, they are relatively expensive (KMS: $.25 - $.45/disk) A less expensive option for 2" sanding disks, is to purchase Swiss-made SIA sandpaper sheets (2.5" x 16.5") from KMS ($1.30). These cloth-backed sheets will adhere to Velcro, and you can easily cut disks out with scissors.

***Note**: Many turners cut the disks oversized (e.g., 2.5") to provide softer abrasion at the edges.*

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b. Sanding Technique

For the outside of the bowl, Glenn uses 3" medium-density pads typically moving from 120 – 320 grits. (For the interior, where more flexibility is required, he uses 2" soft pads.) With the lathe in forward rotation, he sets the drill to rotate in the opposite direction (i.e., clockwise). He emphasized the need to keep your hands and drill away from the rotating corners.

To protect the pad from catching on the corners, he angles the drill so that only the edge of the disk is used to sand. He also takes care not to linger at the corners as it will be easy to quickly reduce the thickness there.

While his lathe speed of 700 rpm is significantly higher than that recommended by most sources, the speed of the abrasive on the wood is a function of lathe speed plus drill speed. His variable speed drill is set to a slow rate, and he applies very light pressure.

Before changing grits, he always stops to examine the surface to see if there are any tool marks or scratches.

Raking Light

To check for surface imperfections, you must use a raking light rather than an overhead source. This means a light source which is oblique or near parallel to the surface in question. Moreover, since overhead light will obscure the imperfections, these should be turned off.

Before removing the blank, he draws a pencil mark on all 4 sides showing the desired thickness of the rim – in this case 1/4".

7. Forming the Rim

He removed the blank from the screw chuck and mounted in a 4-jaw chuck.

Oversized Tenon

If for some reason there is a significant gap between the jaws, he recommends mounting the piece with the grain vertical and the gaps between the jaws set both vertically and horizontally i.e., the gaps should be at 3, 6, 9 and 12 o'clock.

This means the edges of 2 jaws will be cutting into end grain of equal density on both sides.

He begins with the lathe at 1200 rpm and takes a small amount of wood from the centre. If too much wood is removed, there is a danger that the edges will flex leading to chipped corners.

He makes a small shallow “bowl” and then works his way out towards the corners. With each successive pass, he stops short of the previous one. (This produces a series of steps or rings.) This avoids the possibility of the right wing catching on the raised area.

When he nears the mark for the rim thickness (within 3/4" or so), he begins to make a series of hard (unsupported) entry cuts.

Hard Entry (Unsupported) Cut

In his January demonstration, Gord Kifiak recommended the following steps for this cut:

i. Place the gouge on the rest with the face completely closed i.e., the flute facing 3 o’clock.
ii. Engage the wood using only the tip of the gouge and create a “ledge” of approximately 1/32” for the bevel.
iii. Without stopping, advance the cut while rotating the tool to open up the flute and drop the handle.

As this is the danger area in terms of chipping out, Glenn increases the lathe speed (1300 rpm), slows the tool speed and takes very light cuts. As he did at the outset, he continues to stop the cut short of the preceding one.

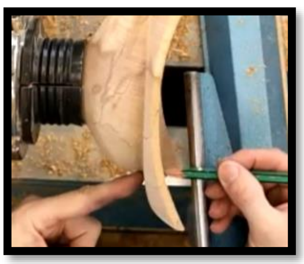
With the bulk of the wood removed, he switches to his 1/2" bowl gouge (45-degree bevel) which he finds provides a smoother cut.

With the lathe speed increased once again (1400 rpm), he takes very light push cuts – gliding or floating the bevel - only going a short distance. The intent here is to keep as much mass as possible to minimize flexing at the corners.

To help pick up the edge, he recommends having a light pointing straight down on the turning. Once again, with each pass, he stops short of the preceding one until he reaches the desired rim thickness. He frequently stops to check that he has a consistent thickness.

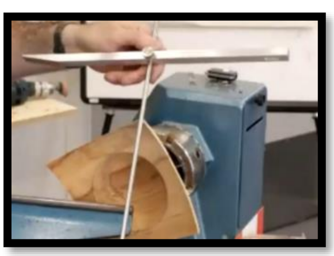
He cautioned against returning to a previously turned area. The thinner wood will produce more vibration and poses the risk of a catch or tear out.

8. Hollowing the Bowl



For the location of the inside of the bowl, he eyes down from above to determine where the where the outside of the bowl meets the rim and then makes a mark inside of this of the desired bowl thickness (1/4” again to match the rim).

For hollowing the sides of the bowl, he starts with a 1/2" gouge before moving to a 3/8” gouge for the final cuts. For the bottom of the bowl, he uses a “bottom feeder” 5/8” bowl gouge with a very short 60-degree bevel (right).



He recommends stopping frequently to check the depth of the bowl using a depth gauge. He stops when he has approximately 3/8” thickness at the bottom.

***Tip**: You can make a simple but effective depth gauge using a piece of flat stock with a hole in the middle sized for a small dowel. Flat stock that is 15” long should be sufficient for most bowls. If the dowel hole becomes “sloppy”, simply put some CA glue in the hole and redrill.*

For those less experienced at bowl turning, he indicated that a round-nosed, negative rake scraper could be used to finish the bottom of the bowl. Since the scraper will not produce as smooth a finish as a gouge, he cautioned against using the scraper on the entire bottom. Rather, feel for any bumps and use it only on these.

9. Sanding the Bowl

To sand the inside, he uses a slightly oversized disk on a soft density sanding pad. The sandpaper will compress around the pad to provide better sanding on a concave surface.

For easier access, he typically sands the inside of the bowl on the far or right side.

He indicated that any bowl has two areas which will require more sanding. With the grain of the bowl vertical, these will be in the 4 – 6 o'clock area. Accordingly, with the lathe off, he will first power sand these areas. He rarely spends more than a few seconds doing this. He then turns on the lathe (700 rpm) and sands the entire bowl. He does this procedure with each successive grit.

Since the centre is not spinning as fast, avoid spending too much time in this area or you will create a divot.

If you power sand the rim, tilt the disk so that it will not catch on the corner. He also recommends avoiding sanding right to the corner as it may quickly reduce the wall thickness. Rather stop short, turn the lathe off and gently sand the 4 corners.

To sand the 4 rim edges, he tapes a piece of sandpaper to a flat surface and gently moves each edge on the paper taking care to ensure that it is flat. He finishes by sanding the edges and corners to soften them.

10. Removing the Tenon

He then removes the turning from the chuck and remounts it to remove the tenon. This can be done using a vacuum chuck, large plate jaws or a simple jam chuck.

Centre the turning by engaging the live centre in the centre mark in the tenon.

Caution: avoiding putting too much pressure with the tailstock, lest you crack the base. A spindle gouge is used to remove the tenon.

He cuts off the nubbin with a fine-tooth saw. Use caution if using a chisel to remove the waste remaining. Sanding with a disk in a Jacob’s chuck in the tailstock or a micromotor is a safer option.

ANATOMY OF A BLOW-UP

Virginia Lee sent me a link to a video which shows a massive blank blow-up. This note outlines the various steps that were taken and offers a post-mortem on what could easily have led to a fatality.

You can view the video at:
https://www.youtube.com/watch?v=XFWxLoUUh_w

(The purpose of this note is not to embarrass the turner who posted it in the hope that it would forewarn others. Rather, it is intended to highlight some critical safety practices when turning.)

INTRODUCTION

In the first part of the video, he discusses a previous blow-up the result of which is shown at right.

While he does not indicate the size of the blank, it appears to be well in excess of 20" in diameter. He was standing outside the "firing line" and a piece only clipped his hip. However, the fragments destroyed his overhead light, knocked his tools off the wall, and the largest piece travelled just under 30 feet denting his garage door.

THE ACCIDENT

The second part of the video details the more serious accident.

It involved a large crotch piece of ornamental Bradford Pear with which he decided to turn a bowl.

He mounted the piece on his lathe using a faceplate and used a chainsaw to clip the corners and remove a section leaving a blank that was approximately 7” x 15”.

He wanted to make the largest bowl possible and so the blank was mounted off-centre with the intent that the two “legs” of the blank would be featured on the rim.

He engaged the tailstock, turned the lathe on and then increased the speed.

You can see what happened next, beginning at the 7:20 mark.

POST-MORTEM

1. Crotch Wood

Crotch wood is highly prized for its unique feather or plume figure. The figure develops when a trunk is knitted to a branch or two branches to one another.

However, as Bruce Campbell noted in his demonstration last September, a “false crotch” which normally means a deep bark inclusion must be avoided. This will normally be found in a crotch that has a steep V or Y shape as opposed to a safer U-shape. As you can see from the photo (left), this blank had a very steep upside-down V shape.

In fact, Bradford Pear is notorious for false crotches and has been banned in some U.S. cities due to the frequency with which its limbs easily break at the crotch in storms and winter ice damaging vehicles and buildings.

While engaging the tailstock as long as possible is an important safety measure, in this case it had the opposite effect.

The point of the live centre was located precisely on the weak bark inclusion (left) which meant that it served as a wedge to help split the blank.

2. Face Shield

A face shield will unquestionably help to prevent damage to the face, especially the eyes, from bark or small pieces of wood. There are also numerous cases, where they have served to protect turners from more serious injury caused by glancing blows from slightly larger pieces. At the time of the blow-up, he was not wearing a face shield.

Having said that, it is unlikely that it would have made any difference in this instance.

The impact force of an object is referred to as kinetic energy (KE) and is measured in units of Joules. Assuming the following very conservative estimates in this case (weight: 10 lb., average diameter: 11”, RPM: 500) the KE of this blank when it exploded would be **239.9 joules**. The Joule equivalent rating for the popular *Uvex Bionic Face Shield* is **4.4 joules**!

Kinetic Energy

Kinetic energy is the energy that objects possess due to their motion.

$$KE = \frac{1}{2}mv^2$$

m = mass (kg)
v = velocity (m/s)
KE = Kinetic energy (J)

The face shield would have been irrelevant and even a glancing blow could have been fatal. What saved him from serious injury was the fact that he was standing outside of the “firing line”.

3. Firing Line

The firing line or danger zone is the area perpendicular to the lathe on either side of the blank. While there is no guarantee, it is the area most likely for a piece to travel if it comes off the lathe.

At a minimum, you (and anyone else in the shop) should stand outside of this zone when first turning on the lathe keeping your hand on the switch in case you need to turn off the lathe.
In discussing the first accident, he notes that he always stands clear of the firing line.

However, there is a very scary moment in the video concerning the second blow-up where he forgets to do so. As he increases the lathe speed, he sees that the blank is seriously unbalanced and at 7:46 he leans forward, placing his head directly in the firing line (right). **6 seconds later the blank explodes**!

4. Face Plate Mounting

As Glenn Lucas noted in his presentation, using a face plate rather than a drive centre will generally provide greater security and less vibration. While it would not have made any difference in this case given the depth of the bark inclusion, there are few points to note.

On the upside, he did clear away the bark to get down to bare wood, used a screw in every hole in the face plate and appears to have used an appropriate length of screw.

However, from the photo at left it is not clear how flat the wood on the mounting area was. For maximum holding power on a piece this large, the face plate must be mounted on a very flat surface. Secondly, he chose to use deck screws in the face plate. While these are stronger than conventional wood screws, they are not as strong as recommended metal screws.

Finally, it appears from the photo that the diameter of the screws was considerably smaller than the holes in the face plate which would allow movement and significant torque force on the screws.

Recommendations for Faceplate Mounting
1. Use Robertson (square head) sheet metal screws. While ideally the diameter of the screws should match that of the holes in the faceplate, depending upon the size of the blank, #12 or for small blanks even #10 screws may suffice. Never use conventional wood screws (tapered, weak and often unthreaded near the head) or drywall screws (brittle and easily sheared).
2. For large blanks, the screws should penetrate 1.5" – 2" into the wood. (1" is fine for small, dry blanks)
3. Put a screw in every hole in the faceplate.

5. Lathe Speed

As noted above, the blank was mounted significantly off-centre which, in a blank this size, guaranteed there would be very significant vibration. Despite observing that the blank was experiencing severe shaking, he continued to increase the lathe speed. While he does not indicate the lathe speed at the time of the accident, earlier in the video he states that his preferred turning speed is 1000 rpm.

Obviously, a safe lathe speed will vary depending upon the size of the blank. As noted on the *TurnAWoodBowl* site, with a lathe speed of 500 rpm the outer edge of a 10" blank will be turning approximately 2 ½ times that of a 4" blank with a corresponding increase in centrifugal force.

While there are many formulae for presumptive **maximum** lathe speeds, these should be taken with many "grains of salt". There are simply too many variables including wood species, blank shape, lathe size and perhaps most importantly, operator expertise.

Having said that, one of the simpler ones is to divide 6000 and 9000 by the diameter of the blank to get a rough range. As the maximum diameter of this blank was approximately 16", this suggests a maximum speed of somewhere between 375 and 560 rpm.

However, this calculation is based upon a blank with the edge trued up (i.e., rounded). Bearing in mind the size of this blank, the offset mounting and the uneven distribution of wood on the blank after chain-sawing, the initial roughing out speed should have been a small fraction of this.

6. Chain Sawing

At the risk of stating the obvious, using a chain saw to trim a blank while mounted on the lathe is not a particularly good idea. If the chain were to hit any part of the lathe, it is possible that it would sever and be thrown back into your face.

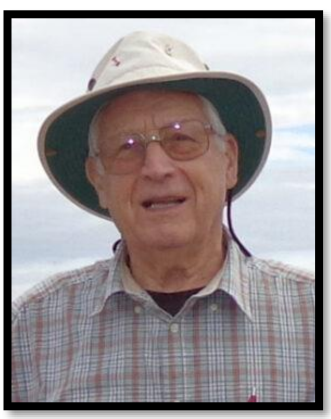
SAANICH FAIR DEMONSTRATION?

It has been suggested that members of the Guild might like to offer turning demonstrations at the Saanich Fair this fall (September 3rd to 5th, 2022).

Similar to the demonstrations at Tulista some years ago, this would involve a rotation of members demonstrating various spindle and bowl turning techniques. This would require one or more members to assume responsibility for organizing this event. This would include contacting Fair officials to determine rental and insurance costs, delivering the Guild lathes to the Fair each morning and returning them to the storage facility each afternoon and developing a rotation of Guild members willing to deliver the demonstrations for the 3 days of the Fair.

If you are interested, please contact Tim Karpiak.

IN MEMORIAM: ERNIE BLEIKER



A long-time member of the Guild, Ernie passed away earlier this month. He was a very friendly individual with a great sense of humour. Despite nerve problems in recent years, he continued to produce some amazing turnings.

Verna, his wife, indicated that he highly valued the friendships he developed in the Guild generally and Group 2 in particular.

Our sympathies to Verna and the family.

INLAY PRODUCTS

Further to the note in the last newsletter, Mike McEwan advises that his website is now up and running. You can access it at **simpleinlay.ca.**

There is an introductory offer of a 10% reduction for orders placed prior to June 15, 2022. (The coupon code is **go10**).

For IWG members who place an order before May 28, 2022 and are able to pick up their order at the AGM, enter the coupon code **iwglocalpu** to remove shipping charges.

PARTING OFF

Thanks to the members of the 2021-22 Executive for keeping the Guild going in the face of very challenging circumstances.

CONCLUDING THOT