

## 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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Tim Karpiak
Vice President:
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Member at Large:
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## THE PRESIDENT'S TURN

I recently re-read last year's President's Report and it was interesting to see how uncertain we were about what was to come. A year later I believe we have had an amazing year. It has been unlike anything our Guild has been through before, but I think we adapted very well.

We had top notch demonstrations all year. Both from our extremely talented local members and from around the world. We were able to develop a tech package that allowed us to go into member's shops and do live demonstrations. There were a few glitches but overall, it was a success. Thank you to our demonstrators. The remote demos from our guest turners were all very informative and motivating. Its wonderful to be able to have someone in another country do a demo for us and be able to interact with that person in real time.

I can see us continuing to do remote demos in the future. There are so many top-notch demonstrators offering this option. But I also can't wait to get back to our guild hall and meet with people in person. Not to mention using our lathe and making some shavings.

I'm happy to report that our membership numbers were very good again this year. It was nice to see the support from returning members. We also welcomed quite a few new members this year, which is very encouraging. It shows that the community of woodturners is growing and active.

Financially, we were able to have multiple demonstrations without incurring any additional cost to members. Fortunately, we were in a position to draw from our reserves but still maintain a comfortable position.

In closing, I would like to thank the members of the Executive. Everyone went above and beyond to ensure that our guild remained a dynamic and interesting place. I really enjoyed working with them. It was a pleasure to be a part of such a great group.

I look forward to continuing the work of the Guild in the upcoming year. I hope you will all continue with us.

Tim Karpiak

Our next meeting on Saturday May $22^{\text {nd }}$ will begin with a short session devoted to the Annual General Meeting.

This will be followed by a remote presentation by Jay Mapson of the Fraser Valley Woodturners Guild. He will provide a detailed discussion of how he turns and embellishes Salt/Pepper shakers in the form of Japanese Kokeshi dolls.


## UPCOMING



Our June meeting will feature a remote demonstration by Carl Jacobson.

Host of The Woodshop.TV on You Tube, Carl's site offers hundreds of videos on a range of woodturning techniques and projects+. (https://thewoodshop.tv/)


## APRIL RECAP: MICHAEL KEHS

Michael gave a detailed and interesting demonstration on how he turns and carves his signature piece, a Celtic Drinking Horn. The following are the highlights.

## A. TURNING



Michael frequently uses basswood (aka linden) which is a relatively soft wood popular with carvers. While noting that it is difficult to get a fine finish from turning tools, this is not a major issue with this project as all the horn's surface is either textured or covered with thin copper sheeting.

He begins with a blank which is 3 " square and 12 " long. In most cases, he does not bother turning a tenon preferring to simply mount the blank in his 4 -jaw chuck with the tail stock engaged.

To turn the blank to a cylinder he uses a spindle roughing gouge. To increase the versatility of this tool, he grinds a flat portion at the edge of the flute which enables him to turn a tenon if necessary (right).

He then removes the tailstock and uses a Forstner bit to drill a $1^{\prime \prime}$ hole approximately 5 " deep. He follows this up by using a $5 / 8^{\prime \prime}$ bit to drill $6^{\prime \prime}-7 \prime$ deep. The measurements are approximate and simply intended to provide a starting point for subsequent hollowing by carving.

He prefers to use bits with a morse taper sized to fit in his tailstock which means he does not have to bother installing a Jacobs chuck.


He then hollows the mouth of the horn to a depth of approximately $1^{\prime \prime}$ using a hook tool. (See the Comments at the end of this note)

The next step is to turn the blank to a "champagne flute" shape. To secure the blank, he uses a cone in the tailstock and then uses a SRG followed by a spindle gouge to complete the form. The base is turned to approximately $1 / 2^{\prime \prime}$ diameter.


Before removing the piece from the lathe, Michael draws 2 horizontal lines on either side of the turning - 180 degrees apart. These will be used to locate the blank for cutting the segments. ( $A$ good suggestion from the audience was to use different coloured pencils for the two lines.)


The final step is to remove the waste portion of the turning. Rather than cutting it off at 90 degrees, Michael removes it by making a series of cuts at the bandsaw by pulling the base through the bandsaw blade which leaves a square-end nub. This provides him with a bit of extra length should he need it.

## B. CUTTING THE SEGMENTS

To cut the blank into segments Michael uses a sled jig. It has two 45-degree pieces which provide a cradle for the blank and the sides of the sled are cut at an angle of 75 degrees.

To ensure that the blank is parallel to the table, a wedge, sized to fit inside the cradle, is used to raise the narrow end of the blank.


The blank is placed in the cradle with one of the 180-degree horizontal lines on top and the first cut is made approximately 1.25 " on the short side. He then rotates the blank so that the other 180 -degree line is on top which ensures that the assembled segments will produce a curved shape.


While each subsequent segment is narrower than the previous one, he sets the distance by eye. A larger number of segments will produce a greater curve. For the 12 " long demo piece, he cut 15 segments.

The cut surface of each piece is then sanded to remove the saw marks. While Michael uses a $12^{\prime \prime}$ disc sander, the same result can be achieved by rubbing the sides on a sheet of sandpaper sitting on a flat metal surface.


## C. ASSEMBLY



Michael first lays out the segments in their proper order on a piece of "sticky" tape. This allows him to see what the ultimate shape will be if he used a "natural" curve.

(While the two 180-degree lines should theoretically match up, he indicated that it is not a problem if they do not. )

Then, using a different coloured pencil (red), he draws a continuous line on the segments which provides a reference line for gluing up the segments.


In fact, he routinely opts for an "unnatural" curve, although normally not as severe in photo at left.

To do so, he simply rotates various segments an equal amount in the same direction. You can either rotate all the pieces for maximum curve or simply rotate a portion of the smaller pieces to obtain a natural curve that flows into an unnatural curve. In the demo, he opted to rotate the pieces a $1 / 4^{\prime \prime}$ in one direction using the red line as a reference point. The greater the rotational distance, the greater the ultimate curve.


Assembling the segments involves end grain gluing. The problem is that the end grain acts as small "straws" which draw most of the glue into the wood resulting in a glue-starved, weak joint.

The conventional response is to "size" the joint by applying a diluted coat of glue to seal the porous end grain. Michael uses Titebond III glue in a 50-50 mix with water and then waits until it dries before applying full strength glue.


He begins the glue-up at the narrow end of the horn and proceeds until he has glued the first segment that was hollowed by the drill bit. As noted above, the segments are either glued on the continuous red line (for a natural curve) or with a pre-determined offset (for a "curved" curve!).

He applies full strength glue to the next segment, rubs the joint to ensure there is a coat of glue on the entire surface, aligns the segment and then presses it firmly together. The piece is set aside to let the glue begin to set - which will typically occur with a few minutes.

Before adding the next segment, it is necessary to carve the inside of the assembled piece.

## D. CARVING

The goal here is to shape the inside of the horn so that it roughly matches what will be the final outside form of the piece.

He uses a Foredom rotary carving tool and begins with a $5 / 8^{\prime \prime}$ coarse grit, Saburtooth ball nose bit. If he were carving a harder wood such as maple, he would use an extra-coarse ball nose bit.

Note: These bits have a $1 /{ }^{\prime \prime}$ " shank which will not fit all rotary tools.



The interior carving consists of a set of convex and concave shapes. Throughout the carving process, he uses his finger to gauge how smooth the curve is on the interior.

When most of the wood is removed, he shifts to a finer ball-shaped burr to smooth the surface.


The final step is to sand the inside.


For this task he uses Kirjes inflatable ball nose sanding drums. Custom sanding sleeves ( $60 x-320 x$ ) are placed on the drum which is then inflated using a small hand pump. He does not exceed 1000 rpm.


## Note

The ball nose drums come in two diameters: $1.75^{\prime \prime}$ and $3 / 4^{\prime \prime}$. Lee Valley only sells the $\mathbf{2}^{\prime \prime}$ model which is too wide for this project. The small size can be obtained from Chipping Away.

The component costs are Ball Nose Drum (\$55), Pump (\$15.50) and Sanding sleeves (\$12.80 (pkg of 3). Guild members are eligible for a $10 \%$ reduction.

The Kirjes have a 1/4" shank which will not fit all rotary tools.

Once the sanding is completed, the next segment is glued on and the interior carving process is repeated until the assembly is completed.

He then carves the outside of the horn. He constantly rotates the piece to check whether he has achieved a smooth curve.

Dust protection is essential during the carving process.


## E. EXTERIOR EMBELLISHMENT

To hide the glue lines, Michael always covers the outside of the horn. While he could simply paint them, for most of his horns he prefers to use thin copper sheeting and texturing. He indicated that this is the most time-consuming portion of the project.

## 1. Copper Sheeting

He begins by drawing the desired pattern on the horn. He then glues many small pieces of paper over the pattern and transfers the design to the paper. This is then removed from the horn and the pattern is transferred to a single piece of paper (right)


He then mounts a sheet of copper between two sheets of $1 / 8^{\prime \prime}$ plywood. The paper pattern is then glued on the plywood and a scroll saw is used to cut it out.

For a simple pattern he indicated that you could simply use tin snips.

He then drills holes (over 100) in the copper for mounting nails and files all edges smooth.

The copper sheet is then laid on the horn and is shaped by hammering using a nylon hammer to minimize marring the surface.


The hammering case hardens the copper which makes it brittle and inflexible well before the shaping is completed. To restore pliability, he heats the copper bright red and then lets it slowly cool. He finds that he must do this three or four times before the copper is fully shaped.

## 2. Texturing

While Michael uses a variety of carving and pyrographic techniques to texture his horns, his most popular technique and the one he is best known for is carving beads using cup burrs.

Designed for use in jewellery making, these burrs have fine teeth on the inside which are used to round over wire ends. However, as the rim is flat and relatively thick, they will not cut into wood. The solution is to grind the outside of the rim until the "interior teeth" appear at the rim which enable the bur to cut into wood.


These burrs come in a variety of sizes ranging from 1 mm to 15 mm . They are available from MDI Woodcarvers Supply or Rio Grande and range from US\$1.50 to \$13.

Michael indicated that for the burrs that are 12 mm and up, you need a particularly powerful rotary tool such as the Foredom although he indicated that you could use a hand drill as well.


The burrs generate a considerable amount of smoke, so some form of dust collection is strongly advised.

Once he has completed the bead work, he removes the ash residue with a wire brush and applies a coat of India ink.

He then applies a variety of colourants including gilders wax and acrylic paints (using a dry brush technique).


## FURTHER INFORMATION

## 1. Hook Tool

A hook tool, which has been in use for hundreds of years, is used for end-grain hollowing. If viewed in cross section, it is essentially a bowl gouge which produces a fast and very clean cut on end grain.


The most common shape is a "straight" hook tool of the sort used by Michael Hosaluk (left).
(https://woodturningtoolstore.com/product/hook-tool-by-michael-hosaluk/ (US\$: 40)

Michael Kehs prefers to use the " bent" hook tool made by Quebec turner André Martel (right). The bend allows him to maintain a bevel rubbing cut when cutting the sides of the hollow form without the shank hitting the rim of the turning when doing deep hollowing with a narrow opening. Martel's tools are available in 3 sizes. (Wood to Works: \$59 less 10\% for large size)


Either tool must be mounted in an appropriately sized shank.


The tool is sharpened using either a $1 / 4$ " half-round diamond tool (US\$11) or a diamond burr with a 1/4" shank. (Martel: US\$9).


For information and advice on using a hook tool, see the following videos:
http://www.aroundthewoods.com/hookuse.shtml https://youtu.be/plufdrsPgWk

## 2. Rotary Carving Tools

There are 3 general categories of rotary carving tools: low speed/high torque units, micromotors and air turbine carvers.


## A. Low Speed/High Torque

Several manufacturers offer rotary tools that feature relatively low speed (maximum of 18,000 $35,000 \mathrm{rpm}$ ) with a high torque. They are particularly good at roughing out and removing a large amount of wood. Three of the more popular units are Dremel, Foredom and Weecher.

## 1. Dremel



The least expensive is the Dremel Rotary Tool which offers a variable speed range of 5000-35,000 rpm. (Model 4000: \$150). It has a 1.6amp motor and electronic feedback which helps to maintain constant speed under load.

## Comments

a. While the tool comes with a $1 / 8^{\prime \prime}$ collet, you should purchase a $3 / 32^{\prime \prime}$ collet ( $\$ 3.50$ ) since many burrs come with this size shank.

Alternatively, you could purchase a keyless chuck (\$28). This will not only allow you to quickly change burrs it will also enable you to use dental burrs with shanks as small as $1 / 32$ ".

b. The relatively large, bayonet body makes it somewhat awkward for carving on turned forms. You may want to consider purchasing a Flex Shaft Attachment (\$45) which provides a smaller and more easily controlled handpiece.

c. The Dremel does not offer a reverse operation which in some cases makes the carving more demanding - particularly for "lefties".

## 2. Foredom



Michael Kehs uses the Foredom SR Power Carving Kit which is a flex shaft unit that comes with a "hanging" motor and handpiece, a foot-operated speed control mechanism and 3 collets (3/32, 1/8, 1/4). (\$330: Chipping Away)

A very robust unit, it has a $1 / 6 \mathrm{hp}$ motor, forward and reverse and offers a top speed of $18,000 \mathrm{rpm}$.

## Comments

a. Similar to the gas pedal in a motor vehicle, the speed of the unit is controlled by foot pressure on the switch. It requires a clear, flat floor area for the mechanism to rest on and users report that it takes practice to learn how to establish a consistent speed. As Michael noted in his demonstration, using the pedal can also be very tiring on the foot.


While Foredom does offer a conventional dial speed control unit, it costs an additional \$110 (Chipping Away).
b. The Foredom unit can also operate a reciprocating handpiece for "conventional" power carving. (Chipping Away: \$115 (Handpiece and 6 chisels).

c. The smallest collet is $3 / 32^{\prime \prime}$ which means one cannot use dental burrs in this unit.

## 3. Weecher



Weecher offers a rotary carving kit which is a "knock off" of the Foredom. It consists of a "hanging" motor (1/4hp), flex shaft and handpiece, a foot-operated speed control mechanism and 3 collets (3/32, 1/8, 1/4).

It has forward and reverse and offers a top speed of 20,000 rpm.
a. As it is considerably cheaper than the Foredom (Chipping Away: $\mathbf{\$ 2 3 0}$ ) it is a popular unit with amateur turners and receives high praise from owners.
b. The flex shaft and handpieces are interchangeable with the Foredom SR and the Foredom dial speed control unit can also be used with the Weecher.
c. Users report that the Weecher flex shaft is more flexible than the Foredom and unlike the Foredom, it does not require lubrication which eliminates the need for routine removal, greasing and reassembly.

## B. Micro Motors

Unlike flex shaft machines, micro motors, which were originally designed for use in dental work, have a DC motor located in the handpiece. While they have less torque than flex shaft units, they provide higher speed performance and much greater control. While they can be used for moderate stock removal, they excel at piercing, texturing, and fine detailing.


While there are many manufacturers, they all offer the same basic configuration: a power supply, handpiece, and a flexible "appliance" cord. They offer forward and reverse operation and most employ a turn ring for very quick tool-free bit changes ( $1 / 4$ turn releases or locks bits/collets). While some manufacturers offer a foot pedal for speed control, most units employ a dial control.

Note: While I was not able to confirm it, a posting on the Woodcarving Forum on Lumberjocks reports that every micro motor sold in the U.S. for wood carving is made by the South Korean company Fuzhow Li Electronic Tech.

The following are some of the more popular models.

## Master Carver Micro Pro



Made by the same firm which manufactures the Burnmaster pyrography unit, the MicroPro has a range of $0-46,000 \mathrm{rpm}$, the handpiece features moderate torque and a fan cooled micro motor with sealed NSK ball bearings. The basic unit handles $1 / 8^{\prime \prime}$ shank burrs and comes with a $1 / 8^{\prime \prime}$ to $3 / 32$ " collet insert. (Wood to Works: \$250 (after 10\% discount))

## Comments

a. Many members of the Guild have purchased this machine, and all report a high degree of satisfaction.
b. If you purchase this machine, you should consider ordering an extra $3 / 32^{\prime \prime}$ collet (to replace the one you will likely lose) as well as a $1 / 8^{\prime \prime}$ to $1 / 16^{\prime \prime}$ collet ( $\$ 20$ each) which will allow you to use dental burrs.

## Wood Carvers Choice



The $35,000 \mathrm{rpm}$ handpiece also features moderate torque as well as a fan cooled ball bearing micro motor and comes with a foot pedal control. (Chipping Away: \$230)

## Comment

The basic collet size is $1 / 8^{\prime \prime}$. You need to order a collet to handle $3 / 32^{\prime \prime}$ and $1 / 16^{\prime \prime}$ shank burrs.


A popular unit in the United States, this $0-45,000 \mathrm{rpm}$ machine features moderate torque, a fan cooled HD ball bearing motor and enhanced dust seal protection. It has a $1 / 8^{\prime \prime}$ collet and includes a $3 / 32^{\prime \prime}$ collet. Nutmeg Woodworking (\$350)

## C. Air Turbine

As the name indicates, these handpieces contain a small light weight turbine which can provide speeds between 320,000-400,000 rpm when connected to an air compressor. Based upon tools widely used in dental practice, they only use $1 / 16^{\prime \prime}$ shank burrs (referred to as friction grip burrs).


As they provide very little torque, they are designed for light weight detailing work. They are widely used by turners who specialize in piercing thin turnings (less than $1 / 8^{\prime \prime}$ ) such as Paul Fennell. They can also be used to work on glass, metal, and gemstones.


These tools require an air regulator and moisture trap. They also require a compressor capable of 2.0 CFM at 35 PSI which typically means 3/4 HP or larger.


The following are two of the more popular models.

## 1. TURBO CARVER



Operating at up to 400,000 RPM, the Turbocarver handpiece is made from injection molded plastic. It is a light weight, lube-free and economical air turbine which is very popular with hobby turners.

A kit which includes the handpiece, air foot control, air filter, pressure gauge and instructional video is available from Razertip for \$384.

## https://store.razertip.com/mm5/merchant.mvc?Screen=PROD\&Product Code=TC2

Alternatively, the handpiece alone can be purchased from the U.S. manufacturer for US\$193. https://www.turbocarver.com/regular-turbocarver-hand-piece-only.aspx

## 2. NSK PRESTO II



The NSK Presto metal handpiece is popular with professional turners. It is oil-less and offers 320,000 rpm at 35 PSI. It features an air mechanism which blows away wood chips for improved visibility and cutting efficiency.

It is available in kit form which includes the handpiece, hose, air line filter, regulator, and foot control (Gesswein: \$855).

The handpiece and hose alone can be purchased for \$465 (Gesswein).


## 3. Stephen Hogbin

Michael Kehs indicated that his turning, cutting and reassembling technique (TCR) was inspired by the work of Michael Hosaluk. However, Hosaluk in turn has indicated that he was inspired by the work of Canadian Stephen Hogbin. Stephen is one of this country's most accomplished woodworkers whose furniture and studio work is celebrated throughout the world.


Using a homemade truck-axle lathe that he made in 1975, Hogbin turned this huge faceplate form which he then cut in two to create a headboard and footboard for a single bed.

Less well known is his reputation as one of the most innovative and influential wood turners over the past 40 years. His TCR techniques produced asymmetrical figures which looked turned but belied the conventional form and he was one of the first to use intentional design illusion in woodturning.

In 2007 he was one of three inaugural recipients of the AAW's POP Award which recognizes individuals who have shown exceptional development in their careers as artists and whose artworks have directly influenced or had a significant impact on other artists within the field of woodturning.

While Hogbin ceased much of his turning in the early 2000's to concentrate on furniture and cabinetry, his work remains highly influential if not always acknowledged.

Commenting on Hogbin's 1975 turning Egg Cup (right), Mark Sfirri noted in 2015 that at the time it seemed to him to be twenty years ahead of its time and "Now, nearly forty years later, it is still twenty years ahead of its time."

The following are some of Hogbin's better-known TRC works.



Bird Table: Australian Yellow Walnut: $13^{\prime \prime} \times 36$ "


Zebrawood: 11" x 8" x 11"


Walnut: $18^{\prime \prime} \times 12^{\prime \prime} \times 7$ 7"


Chestnut: 8" x 18" x 17"

To learn more about his various techniques, see his book Hogbin on Woodturning (2013).

## PARTING OFF

Thanks to the members of the Executive for their hard work and a special thanks to Tim Karpiak for the immense amount of time and energy he has devoted to maintaining our operations over the past 12 months.

## CONCLUDING THOT



