IWG News

The Newsletter of the Island Woodturners Guild June 2020

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:
Vik Peck

Secretary:
Michael McEwan

Treasurer:
Peter Pardee

Member at Large:
Emma Banner

Member at Large:
John Kilcoyne

Member at Large:
Virginia Lee

Past President:
Steve Werner

Newsletter Editor:
John Kilcoyne

The IWG gratefully acknowledges the support of the following companies:
Artisan Wood to Works
Chipping Away
Industrial Plastics & Paints
Island Blue Print
KMS Tools
PJ White Hardwoods
Richelieu Hardware

THE PRESIDENT'S TURN

I hope everyone is getting some time in the shop. I have enjoyed being able to keep the doors open and get some fresh air. Hopefully, I can get caught up with projects that have been waiting.

I have also been watching a few online demos. One of the best things about remote demos is that it gives us access to so many world class woodturners. I recently watched Lyle Jamieson's demo he put on for the Fraser Valley Guild. He was great. There is always something to take away from a demo. Even if it is only a small thing.

Speaking of demo's, I am looking forward to Mike Mahoney's presentation on Saturday. He is such a great turner. I am sure he'll give us enough to practice and think about all summer.

For those that are members of the AAW, I hope that you all got the notice of the special online symposium that they are holding in July. It will be presented on the Zoom format and you will be able to watch the videos for up to 2 weeks after. There is a great lineup of demonstrators and the price to participate is unbeatable. Registration closes on July 3rd.

They are also allowing non-members to register/participate for the same price. All the details are on their website. "woodturner.org"

As this will be the last newsletter before the summer break, I would like to wish everyone a great summer. Thank you for being part of our Guild and for all the support during this unsettled time. And thanks to all the members of the executive.

I hope to "see" everyone on Saturday!

Tim Karpiak

NEXT (ZOOM) MEETING: MIKE MAHONEY

Our meeting on Saturday June 27th will feature a live remote presentation by Mike Mahoney which will be approximately 3 hours long.

NB: THIS SESSION WILL BEGIN AT 9:00 A.M.

Mike is regarded as one of the finest bowl turners in the U.S. A professional woodturner since 1994, he had been a frequent demonstrator at AAW symposia as well as clubs throughout North America and Europe.

The topics covered will include:

Tool design and grinding	Bowl Coring
Thread chasing	Oak Platters
Bowl turning	Shear scraping
Hollow forms and urns	Pepper Mills
Wood finishes	Drinking cup

Log in details to the Zoom platform will be provided by email.

NOTE: The May meeting on Zoom had 42 participants and was set to begin at 1:00 p.m. However, the start was delayed for approximately 25 minutes as some members were unfamiliar with Zoom controls or had difficulty logging in. While this session was intended as a trial run, a delay of this magnitude will not be possible for Mahoney's presentation. If you are not familiar with how to participate in a Zoom session on your device, contact either Tim Karpiak (timkarp@shaw.ca) or Virginia Lee (remoteva@gmail.com) who are willing to offer a trial lesson. Otherwise, you run the risk of missing out on this presentation.

FALL 2020

SEPTEMBER

This meeting will feature a demonstration by Cindy Drozda. An internationally acclaimed turner, she will demonstrate turning one of her signature-style boxes with a finial, lid and an inlaid decorative ring and foot made from a contrasting wood.

NOVEMBER

This meeting will feature a demonstration by Joanne Sauvageau from Alberta. She will demonstrate a unique technique of using stamps to embellish turnings.

She has demonstrated at numerous guilds in Canada and the U.S. and has been selected as a feature demonstrator at Arrowmont and SWAT.

SPRING CHALLENGE

The spring challenge was to create an **innovative** hollow form. Get creative!

Please submit photos of your work to Virginia (remoteva@gmail.com) prior to the June meeting for posting on the Guild website.

MAY RECAP: FINISHES

Vik Peck gave an excellent analysis of various types of finishes and her PowerPoint slides contain a wealth of valuable information and advice.

As these slides have been posted on the Guild website (which can be found at (http://www.islandwoodturners.ca/galleries/demonstrations/) the following is restricted to a limited selection of the topics she discussed.

INTRODUCTION

Vik began by noting that the choice of finish involves a variety of often competing concerns including durability, ease of application, aesthetics and safety. She identified 3 broad categories of finishes: penetrating oils, film finishes and, waxes and polishes.

A. PENETRATING OILS

Introduction

a. Vik noted that penetrating oil finishes are clearly the most popular choice for woodturners. They are easy to apply (and refinish), produce a natural looking finish, highlight or "pop" any figure in the wood and, with low or zero VOCs are much safer than lacquer or oil-based varnishes.

b. Chemists classify oils as "non-drying", "semi-drying" and "drying". The most common **naturally drying** oils used in woodturning are linseed oil, tung oil and walnut oil. They all harden or polymerize through a chemical process in which the components crosslink by oxidation rather than evaporation of a solvent. While they provide relatively little protection from abrasion, for many turnings this is not a significant factor.

c. Driers and Polymerization

All three oils in their raw or pure state take a considerable amount of time to cure – anywhere from 3 days (tung oil, walnut oil) to more than 2 weeks (linseed oil). There are two techniques that manufacturers use to hasten the process.

In the case of **boiled linseed oil**, most manufacturers add chemical driers. These are metallic salts (e.g. cobalt, manganese, iron) that accelerate oxygen absorption which speeds up the oxidation process. In most cases, the finish will dry overnight.

Cobalt Driers: For over a century, the most widely used drier in boiled linseed oil (and many oil-based finishes) has been a cobalt compound. In recent years, it has been established that exposure to cobalt can cause serious health risks including a risk to fetal development. As cobalt driers do not crosslink into the finish and are water soluble, the EU has imposed increasingly stringent requirements on the quantity of cobalt in products including finishes for food items and children's toys. The coatings industry in Europe (and North America) expects that it will soon be categorized as a carcinogenic which has spurred a search for safer alternatives. However, since cobalt has not been declared a hazardous substance in Canada or the U.S., there is no legal requirement for manufacturers to disclose the concentration of cobalt in their finishes in MSDS filings.

In the case of **tung oil** and **walnut oil** the most common technique is to produce what is called a polymerized version. This involves a specialised heat-treating process which initiates the cross linking and leads to quicker curing on application as well as a harder finish. However, as this process thickens the product, most polymerized oils are mixed with a thinner (mineral spirits) to aid in application and penetration.

d. Food Safe Finishes

With the possible exception of products containing cobalt driers, any of the finishes discussed by Vik are food safe **once they have fully cured**. Thus, even if the solvent poses a health risk, once it has **completely** evaporated, the remaining resins/solids do not.

While curing times vary, many sources suggest a waiting period of 30 days for utensils or children's toys. Others suggest that if you cannot smell any finish scent it has cured. An improved version of the smell test from Tim Soutar is to place the item in a closed paper bag. Once you can open the bag and not smell any finish, it is cured.

e. Safety

A by-product of oxidation is heat. If oil-soaked rags are piled together, this can product spontaneous combustion. Always lay out the rags and allow them to dry before disposal.

1. Boiled Linseed Oil (BLO)

While BLO can be used as a component in a blended finish, it is not a particularly good choice to use on its own. On maple and other light woods, it imparts a yellow/orange colour which will darken with age. It can go rancid or mildew, offers no water/vapour protection, is relatively inflexible when cured and, as noted above, often contains cobalt driers.

However, if you want to use BLO, alone or in a mix, you should consider using Oli Natura. (Westwind Hardwoods: $44/1 litre). It is solvent free, contains no cobalt driers and is approved for use on children's toys.

2. Tung Oil

a. Caveat Emptor

There are very few legal regulations governing the labelling of finishing products which means that manufacturers can use any label regardless of the contents. Hence, for example, *Minwax Tung Oil Protective Finish* contains no tung oil! It is simply a mixture of linseed oil and varnish. (Note the font size of the label on the can!) Similarly, there are products called *Teak Oil* which contain no teak oil but are simply regular varnish thinned with mineral spirits or mineral oil.)

While it is tempting to suggest that you read the contents, the problem is that there is no legal requirement for manufacturers to stipulate benign contents and most refuse to do so on the basis that it is proprietary information.

a. 100% Pure Tung Oil

Used for over 2,500 years, tung oil is famous for its natural look, longevity, durability, and easy repairability. 100% pure tung oil has no solvents or driers, is impervious to mold and remains flexible when cured. While it does impart a slight honey-colour to most woods, (which many find attractive), there is no yellowing or darkening thereafter.

Pure tung oil is available locally from Lee Valley (House branded: $41/litre) or in Vancouver from Greenworks Building Supply (Finico: $29/litre). (http://greenworksbuildingsupply.com/) (I was unable to determine whether LV's product is manufactured by Finico, a Canadian manufacturer.)

Pure tung oil requires 24 – 48 hours to dry between coats. For quicker drying and better penetration, it can be thinned using either mineral spirits or citrus solvent.

Note: Citrus Solvent

Citrus solvent (aka D-Limonene) is colourless and consists of citrus peel oil extracted from the peel of an orange (98%) mixed with a small amount of water (2%). While it has long been used as a cleaner/degreaser, pure citrus solvent is becoming increasingly popular as an alternative to more toxic solvents such as mineral spirts or turpentine.

However, it remains very expensive. The only B.C. supplier I could find is Greenworks in Vancouver where the price is $50/litre. It is more widely available in the U.S. but at an average cost of US$35/litre it is not much cheaper. The one exception is Spirit Lines Skin Boat Store in Anacortes WA. https://shop.skinboats.com/Cirtrus-Solvent-100-pure-organic-D-L100.htm with a price of US$19/litre.

b. Polymerized Tung Oil (PTO)

As noted above, PTO consists of pure tung oil which is heat-treated to produce a finish which cures quickly (overnight) and produces a slightly harder finish. As this process thickens the product, most PTO's have solvent added to enhance application and penetration. The most common solvent is mineral spirits.

The following are some of the more popular PTO products.

Lee Valley

They offer two products: Polymerized Tung Oil Sealer ($57/litre) and Polymerized Tung Oil High Lustre ($67/litre). (Both products are made by Sutherland Welles which also makes *Millies Penetrating Tung Oil* which is discussed below)

LV's site states that the High Lustre is 50% polymerized tung oil and 50% mineral spirits while the Sealer, according to one source, is 10 - 20% tung oil with the balance being mineral spirits and other solvents. As the name implies, the Sealer is used as a first coat to seal the wood. Thereafter, you use different mixes of the Sealer and High Lustre products depending upon your desired sheen. 2 parts Sealer and 1-part High Lustre produces a low sheen, 1-part Sealer and 2 parts High Lustre produces a medium sheen and High Lustre alone produces its namesake. Each coat requires 24 hour drying time.

Note: Given the high cost of the Sealer ($57/litre) and the low cost of mineral spirits ($8/litre) – you may wish to consider purchasing only the High Lustre and thin it yourself.

There are a few common suggestions made by on-line reviewers of these products. The first is to not allow any coat to sit for more than 10 minutes or it will become very sticky. Having said that, if a coat does become sticky, simply apply a bit more finish and then wipe it off immediately. The second point is to apply increasingly thinner coats as you proceed since the wood will be increasingly saturated and the oil will not penetrate. The third point is to watch for "bleed back" which are puddles or bubbles near wood pores as the finish cures which must be removed before they harden. The fourth point is to always allow sufficient time for a coat to dry – ideally overnight.

Millies Penetrating Tung Oil

This product consists of polymerized tung oil, citrus solvent and a small amount of beeswax. (Woodchuckers: $33/pt + shipping)

Regardless of the number of coats, the final finish will always be satin.

For an instructional video on application, see: https://www.google.com/search?client=firefox-b-d&q=how+to+apply+millies+penetrating+tung+oil+finish#kpvalbx=_0R3XXujeOde50PEP-6SKsAQ19

Note: Tim S heats this product using a double boiler. This reduces the viscosity which enhances the penetration and also produces faster polymerization/curing.

Safety: **You must use a double boiler**. Never apply heat directly to a container of this finish.

Barrie Baptie's Modified Millies

While there are a number of recipes, Barrie's consists of 4 parts PTO and 1-part Walnut Oil. He obtains both of these from LV ($67/litre & $38.50/litre respectively). He then adds 1 gram of beeswax to every 40 ml of the oil mixture.

Safety Note: The wax must be melted in a double boiler. Never apply heat directly to a container of wax.

Spirit Lines Polymerized Tung Oil (100% Pure)

For post-pandemic times, you may wish to consider this product which is available from Spirit Lines Skin Boat Store in Anacortes WA. They offer a 100% pure Polymerized tung oil **which contains no solvents**. (US$21/qt) (https://shop.skinboats.com/100-Pure-Tung-Oil-32oz-polymerized-t100.htm)

You have the option of thinning it with either mineral spirts or their citrus solvent. They recommend a 50/50 mix of thinner and tung oil for initial coats and 25/75 for top coats.

Mohawk Modified Tung Oil

This product which is used by many members **is not a true penetrating oil finish**. (Richileu: $45/qt) Rather, it is an oil/varnish blend, which as Vik noted, is often referred to by the generic title "Danish Oil".

The Safety Data Sheet for this product shows the following percentage of contents (by weight):

Petroleum Distillate (Mineral Spirits):	40 – 55%
Aliphatic petroleum distillate (Resin):	10 – 25%
Tung Oil	2.5 – 10%
Cobalt Octoate	< 0.1 %

The high varnish content means that a little goes a long way, it dries very quickly and produces a harder finish than pure or polymerized tung oil. Successive coats provide increased sheen.

3. Walnut Oil

a. While there is relatively little scientific literature on walnut oil, it appears that the one major difference between walnut oil and tung oil is that walnut oil produces a clearer finish i.e. it does not impart a "honey" tone to the wood. Hence, if you want to "pop" the figure but retain the original colour of the wood, you may want to consider this product.

Another difference is that fresh tung oil has a relatively strong oil smell whereas walnut oil is described as having a "sweet" smell. However, this difference disappears once the finish has cured. It is also claimed that the shelf life of walnut oil is longer than tung oil, but I could not verify this. (The Forestry Forum suggests that both have a shelf life of 1 – 3 years and both will start to gel if exposed to oxygen. See preventative tips below)

b. Most commercial walnut oil is 100% pure oil that has been heat treated to improve the rate of polymerization/hardening.

Vik noted that you should not use **grocery store walnut oil** as most brands contain additives which prevent it from curing.

c. No matter how many coats are applied, walnut oil will only produce a matte finish. If you want a higher sheen, a wax finish can be applied once the oil has cured.

d. Safety: Nut Allergy

As this oil is derived from walnuts, questions have arisen concerning the safety of this finish for those who have a "nut allergy". The following is taken from the website of Mike Meredith of Doctor's Woodshop who produces a walnut oil finish:

About 3 to 5% of the general population reports a nut allergy. Of those reporting "nut allergy", about 90% are allergic to peanuts, which are a legume and not a nut at all. Of the remaining 10%, 5% are allergic to cashews and the rest allergic to walnut, almonds and other nuts including filberts. Walnut allergy is elicited by the proteins in the nut, wood and leaves. The walnut oil I use is treated and filtered such that no protein is detectable by the most sensitive methods in my lab (mass spec and colorimetric). I can find no data on cross reactivity between nut allergens. I do not guarantee that there is no risk of allergy, but the risk is as small as I can make it.

e. Sources

Lee Valley

LV sells 100% pure Walnut Oil ($38.50/litre).

Their instructions call for a heavy coat to be applied and left to soak for at least 30 minutes. The excess is wiped off and left to dry for at least 24 hours. Additional coats are applied as needed.

Mahoneys Utility Finish

Noted bowl turner Mike Mahoney, who will be our remote demonstrator in June, has created a range of walnut oil products, the primary one being the Utility Finish which is also 100% pure walnut oil. (Craft Supplies USA: US$18/16 oz.) This is marketed as a finish for salad bowls and kitchen utensils.

The only Canadian source I could find for this is Woodslee Summercraft. ($30/16 oz. plus shipping.) https://www.woodsleesummercraft.ca/product/mahoneys-finishes-canada/

In terms of application, a heavy coat is first applied to the piece. Every 15 minutes or so, add more oil to any dry spots. Once these have disappeared, the finish should be allowed to cure for at least 2 days.

4. Other Oil Finishes

Osmo Polyx-Oil

This is a blend of natural oils (sunflower, soybean, thistle), waxes (carnauba, candelilla) and white (mineral) spirits (LV: $64/750ml).

It is safe for humans and animal when cured and meets current EU standards for use on children's toys.

Oli Natura Hard Wax Oil

This is a blend of various plant oils (including soy), waxes (including carnauba) and mineral spirits. It does not contain any cobalt driers and meets EU standards for food safety and use on children's toys. ($55/litre: Westwind).

Tried and True Danish Oil/Original Wood Finish

Both of these products consist of 100% polymerized linseed oil while the Original Wood Finish also contains beeswax. They contain no petroleum distillates, solvents or heavy metal driers and are food safe. (LV: $20 and $32/1pt)

Application: These products have received a bad rap from users who did not bother to carefully read the instructions. The crucial requirement is to apply **very thin** coats. Given the high solid contents, the coverage is extremely high, and a pint will last forever. You can find more details here: https://www.triedandtruewoodfinish.com/resources/how-to-apply/

5. Preserving the Product

For hobby turners, one of the most frustrating aspects of penetrating oils is their short shelf life once the container has been opened. Every time you open the container you are allowing fresh oxygen which will promote curing and "gelling". The following are some options to consider.

a. Do not leave the container open when applying a finish. Pour a required amount into a separate container and immediately reseal the primary container.

b. Argon gas spray (Finish Preserve) does a very effective job of preventing oxidation (LV: $17.50). However, at a maximum of 75 bursts per container, it is expensive.

c. A less expensive and equally effective option is a Stop Loss Bag (LV: $5.90) which allows one to expel most air from the container.

6. Kitchen Utensils: Mineral Oil?

Mineral oil USP is a non-drying oil that offers only minimal protection and must be frequently recoated. Why then do so many professional turners and carvers recommend this product for their kitchen utensils such as spoons and spatulas rather than a more protective finish?

The answer likely lies in after sale maintenance. **Any oil finish** will require recoating. Consider a utensil finished with a "better" finish such as PTO. To recoat, the customer must avoid purchasing a product which is labelled Tung Oil but contains none. They must then pay a hefty price for a small container of pure PTO ($24/8 oz from LV). And within a year or so, they will likely find that the contents have gelled and are useless. Similar observations can be made with respect to many of the drying oils noted above.

By contrast, mineral oil is readily available at any pharmacy, it is 100% food safe (it is used as a laxative), it is odourless, will never dry or leave a sticky residue, has a very long shelf life and at $8.00/8 oz., it costs a fraction of any of the "better" oil finishes.

B. FILM FINISHES

Oil finishes provide relatively little protection from abrasion, water and water vapour transition. For better protection, you need a product which forms a film on the surface of the turning. Vik identified 4 film finishes commonly used by turners: shellac, varnish, lacquer and CA glue.

1. SHELLAC

(*Detailed notes on shellac can be found in the December 2015 and January 2016 Newsletters which can be found in the Members Area on the Guild website at: http://islandwoodturners.ca/documents/december-all-2015.pdf, and http://islandwoodturners.ca/documents/January%202016%20Newsletter.pdf*

The former contains technical information regarding shellac while the latter discusses various uses in finishing. Some of the points discussed in the notes are repeated here.)

1. Vik noted that shellac is a "miracle" finish. It can be used as a standalone finish coat or a component in a mixed brew, an underlay coat to either "pop the grain" or add "warmth" to your turning, a barrier coat to protect areas of a turning from CA stains, dyes or other colourants, or as an adhesion coat where two dissimilar finishing products are used. As a natural, renewable product it is inexpensive, easy to use and completely food safe. While it is not a particularly tough finish, it does provide excellent protection from water vapour which means reduced seasonal movement of the wood.

2. Shellac is derived from resin secreted from the female *lac* bug. Depending upon what qualities of shellac are sought, the resin is then subjected to various processing steps to produce what are referred to as flakes. The flakes are then mixed with denatured alcohol to produce the finishing product.

Denatured Alcohol: Ethanol is pure or absolute alcohol which is used in the production of various alcoholic beverages. It is also used in a variety of personal care and cleaning products. To "discourage" the consumption of these latter products, a toxic "denaturant" is added to the ethanol which produces denatured alcohol. (The denaturant does not affect the chemical properties of the ethanol.)

3. Dewaxed Shellac

In its natural form, shellac has a wax content of approximately 5 - 6%. However, you can purchase dewaxed shellac flakes and mix your own or you can buy it premixed. Virtually all professional finishers recommend using dewaxed shellac.

While I used to mix my own, I now use only **Zinssers Bull's Eye Seal Coat** which is a 2 lb cut of dewaxed shellac. ($25: Lumberworld)

Caution: Don't' confuse this with Zinnsers Bull's Eye Shellac (clear or amber) which is **not** dewaxed.

4. Why Premixed?

A litre of Seal Coat costs less than 1/2 that of mixing your own and I have found that the blond shellac provides sufficient colour for my purposes.

The main argument in favour of mixing your own, is the assurance that you have fresh shellac which will cure properly. I have not had a problem with Seal Coat.

While the manufacturer states that it has a shelf life of 3 years from the date of manufacture, my experience is that it lasts longer than this. My current can is almost 5 years old and the shellac is still fine. (I do maximize finish life by always pouring some into another container and immediately resealing the can.)

To ensure maximum shelf life, you should buy the "freshest" can by deciphering the stamp on the lid of the container which consists of a letter, 5 digits and another letter.

The only digits that matter are the second and third. The second digit refers to the year of manufacture (i.e. 9 means 2019) while the 3rd digit refers to the month of manufacture (9 is September, 0 is October and N and D represent November and December.

Thus, **Lot S5O273 B** means that my shellac was manufactured in October 2015.

5. Storage: Glass container

Shellac is acidic and will react with metal. (The inside of a can of Seal Coat has a special coating.) It should also not be stored in polyethylene containers (right) which are permeable to alcohol vapours. Use a glass container.

6. Caution: Ridges

Seal Coat is a 2 lb cut which means that it is relatively "thick". If you apply it with a brush or a rag, the alcohol will quickly evaporate leaving ridges where the brush stroke or "rag drag" ends. A new coat will only partially solvate a prior one and will not remove the ridges.

The easiest solution is to thin Seal Coat using denatured alcohol to a 1.5 lb or 1 lb cut.

The formulas are as follows:

Desired Cut	1 lb Cut	1.5 lb Cut
Ratio: DNA to Seal Coat	2/3 : 1	1/4 : 1

7. Preserves the colour of Padauk (and other exotics?)

While fresh padauk features a unique orange colour, this quickly fades to a boring brown.

An experiment of wood finishes by Woodworker's Source, found that shellac outperformed all other major finish types in preserving the orange color of the padauk. One theory is that as padauk's colors (as well as many other exotics) are very soluble in alcohol, the solvent in shellac may "pull" some of the wood's natural colours from the wood surface and "lock" them in the lac resin. https://www.woodworkerssource.com/blog/woodworking-101/tips-tricks/an-awesome-padauk-finish-to-bring-out-its-best-color/

8. Friction Polish

This is a popular "shellac-based" product for quickly producing a high gloss finish on the lathe. The title refers to the fact that the heat created by the friction of the applicator on the wood while the piece is turning on the lathe, causes the alcohol to evaporate and the shellac to quickly cure as well as prompting any oil content to catalyse.

a. Commercial Products

The two most common commercial products are Hut Crystal Coat (KMS: $22/6 oz.) and Shellawax which is available in liquid or cream (LV: $48/50 for 8.5 oz).

The latter's contents are typical:

Ethanol (Untreated "Denatured" Alcohol)	70%
Mineral Turpentine	5%
Shellac, Wax and ???	25%

b. Homemade

You can easily make your own friction polish for a fraction of the cost of commercial brands. The most common formula is equal parts dewaxed shellac, boiled linseed oil and denatured alcohol.

(The absence of wax means that you are not restricted in applying a top coat.)

While it is often referred to as OB Shine Juice, in honour of its "inventor", this formula dates to the 1700's when it was first used in French polishing. In that process, the friction is caused by the rubber (pad applicator) being applied by hand. (Shellac has a very low melting point – it will start to soften around 120 – 140 degrees Fahrenheit.)

While the components will separate when stored, they will quickly recombine with a gentle shaking. For a detailed note on homemade friction polish including tips on mixing and applying, see: http://azwoodturners.org/pages/tips/HomemadeFrictionPolish.pdf

2. VARNISH

a. Oil-based varnishes provide a very durable gloss finish which is highly resistant to water and water vapour.

The most common form used by turners is wiping varnish which cures relatively quickly given the high solvent content (According to their MSDS, MInwax Wipe-On Poly consists of 50 – 75% solvent.)

b. Vik noted that you can also make your own wiping varnish for a fraction of the cost of a commercial product.

She recommends a 1:1 mix of mineral spirits and oil-based polyurethane varnish. She also advised that you should apply relatively thin coats.

3. LACQUER

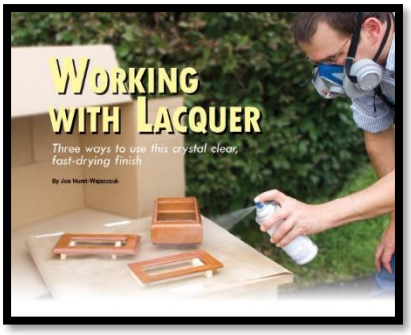
Lacquer consists of dissolved nitrocellulose and plasticizers in a mixture of various solvents. Available in an aerosol form, it comes in various sheens, dries very quickly (< 10 minutes) and provides an extremely durable finish. It also provides a very clear finish which does not alter the colour of the wood and will not yellow.

As is the case with any aerosol finish, light coats are essential to prevent runs.

Members recommend two brands. The first is Krylon which is available in gloss, satin and matte. The latter, called *Matte Finish*, is available at Michaels.

The other is Mohawk's *Finishers Choice,* which is also available in gloss, satin and flat (Richilieu). While it is more expensive than Krylon, it has a much higher solids content so fewer coats are required.

Safety: Lacquer contains a variety of toxic chemicals and the danger is exacerbated when used in an aerosol form. While some of these have a low "smell" threshold, there are others which do not, which means even if you cannot smell them, they are in the air. For example, methylene chloride (carcinogenic) has a smell threshold of 250 ppm but toxicity starts in the under 1 ppm range. Ideally you should spray outside and at a minimum should use a chemical/cartridge respirator.



4. CA GLUE

While CA glue can be used as a finish on many small turnings, the most common application is on pens. It cures very quickly and provides a finish which is clear, waterproof and very durable.

An internet search will turn up innumerable videos showing application techniques.

Safety Notes

a. The fumes from CA glue can irritate the nose and eyes and some members have experienced significant allergic reactions. Alternatively, you could consider a respirator or a fan.

b. Curing CA glue involves an exothermic reaction (heat) which can ignite the paper towel applicator. Not good at the best of times, Steve W reports that it is even worse if the towel is stuck to your fingers. …. (or so he has heard!)

C. WAXES AND POLISHES

As wax provides little or no protection from abrasion, heat or water/vapour, it is primarily used to provide either visual or tactile enhancement.

1. Wax Types

Carnauba: One of the hardest natural waxes, it provides a relatively long-lasting and glossy shine. (CoopCoco ($17/250 gr plus shipping) https://coopcoco.ca/en/wax/carnauba-wax# However, by itself, it is brittle and very difficult to polish once it has dried. For this reason, it is frequently mixed with one or more of the following waxes.

Beeswax: A moderately soft wax, it buffs out to a mellow sheen. It does not provide as "silky" a feel as carnauba. (Urban Bee: $16/lb)

Paraffin: A soft wax, it provides a very "slippery" finish. (Country Grocer: $9/450 gr)

Micro-Crystalline: A petroleum by-product, this relative newcomer is noted for its superior moisture resistance, protection against heat and finger marks and ease of refinishing. It provides a soft sheen when buffed. While it is relatively expensive, a small amount goes a long way. (LV: $15/4.3 oz)

The durability and degree of shine of these waxes is directly related to their melting points (Celsius) which are:

Carnauba	84
Microcrystalline	78
Beeswax	64
Paraffin	60

2. Commercial Waxes

Blue Label Paste Wax (LV: $39/1 lb)

A traditional paste wax, the ingredients (by weight) are:

Carnauba	6%
Paraffin	16%
Turpentine	5%
Mineral Spirits	73%

Hampshire Sheen

This manufacturer offers a variety of waxes including paste, microcrystalline and embellishing wax. Their basic Gloss Finishing Wax is a blend of carnauba and microcrystalline waxes, mineral spirits and what is described as “Danish oil”.

Woodslee: $29/4.5 oz.) https://www.woodsleesummercraft.ca/

Briwax: Caution

Briwax makes a number of brands of paste wax containing a mixture of beeswax and carnauba wax. However, **BriWax Original** contains a large amount of toluene (60 – 90%), a known neurotoxin which can cause serious health risks and is implicated in birth defects. They now offer a toluene free version of this product. However, it does contain xylene (3 – 7%) which can cause headaches, dizziness, drowsiness, and nausea. An organic respirator is recommended.

3. Homemade Paste Wax

An internet search will turn up a variety of recipes for homemade wax. Most rely upon a basic formula of 1-part beeswax to 8 parts mineral oil.

Note: For greater protection and durability, you may want to combine carnauba and beeswax.

Safety Note: Wax will ignite. Never apply heat directly to a container of wax. Use a double boiler system.

4. Polishes

a. Yorkshire Grit

This is an abrasive paste which consists of mineral oil, beeswax and diatomaceous earth. The last of these is a silica-based product which is made from the fossilized remains of tiny, aquatic organisms. Preceded by sanding to 240x, it is estimated that it produces a finish equivalent to 1000x. (Woodslee Summercraft: $33/8 oz.)

While it is typically used prior to the application of a top coat, it can be used on its own as a final finish.

Homemade Version

While there are a variety of recipes for a homemade version, one of the more popular ones is: 32 oz mineral oil, 8 oz beeswax and 8 oz diatomaceous earth food grade. (The latter can be found at Canadian Tire: $13/8 oz.)

Detailed instructions can be found at: https://www.woodturningbasics.com/make-your-own-polishing-wax-for-wood-bowls-and-other-turning-projects-like-yorkshire-grit/

Note: Some users report difficulties in that the mineral oil never really dries. You may wish to consider substituting this with a drying oil such as tung oil or walnut oil.

b. EEE Ultra Shine

This polish consists of various waxes and shellac in a mineral spirits solvent (40%). It also contains tripoli (aka rottenstone) which is a very fine abrasive powder. (LV: $43/8.5 oz.)

ANDRE'S TREMBLEURS WIN BEST OF SHOW (WOODTURNING)

Every year, the Richmond Carvers Association holds a juried competition for carvers and woodturners. This year's (virtual) competition attracted over 265 entries from Canada, the U.S., Australia, Italy and U.K.

Andre's *Trembleurs* which were featured in the April Newsletter were awarded a First, Best of Division and Best of Show (Woodturning: Intermediate).

Congratulations on the well-deserved recognition.

TURNING EGGS

Gil Heise

I find turning eggs a very satisfying experience: once people pick up one of my eggs, they often have trouble putting it down.

Eggs are also a great way to use small offcuts of valuable wood as well as branch wood e.g. Douglas fir for white eggs and cedar for brown eggs.

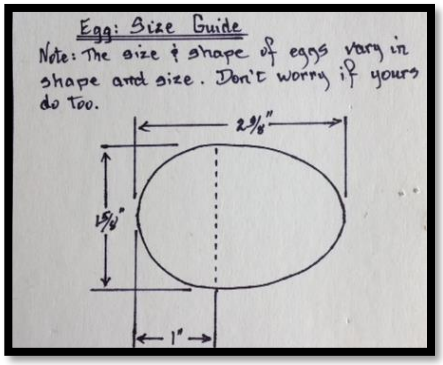
While the procedure is straight forward, the challenge is to ensure that the egg looks natural – no pointy or blunt ends and a continuous smooth curve. Some people turn eggs exclusively between centres. However, this means that the ends must be hand finished which makes it difficult to achieve a smooth profile.

A better method is to use a second mounting. I tried using a spring chuck as described in Keith Rowley's book, *Woodturning Projects*, but found that it tended to mar the sides of the eggs. Accordingly, I devised a type of "glue chuck" using hot melt glue which releases the egg in pristine condition.

The tools I use are fairly standard: a 1/2" spindle gouge, a small skew, a 1/8" parting tool and left and right skewed negative rake scrapers (The last 2 are homemade of course!).

I also use a leather-tipped dowel that will fit into my hollow headstock, a punch made from a large nail for removing the glue from the chuck and a mallet.

The blanks are turned between centres and measure 4” in total length by 1 3/4” in diameter with a 1/2” to 5/8” long tenon.



With the blank mounted in a 4-jaw chuck, guide marks are applied based upon the measurements in the Size Guide.

Using a spindle gouge, I turn the small end of the egg and a **small** portion of the large end to develop a smooth curve. I found that if I removed too much wood on the large end, the blank developed harmonics. The surface is then refined using a skewed negative rake scraper.

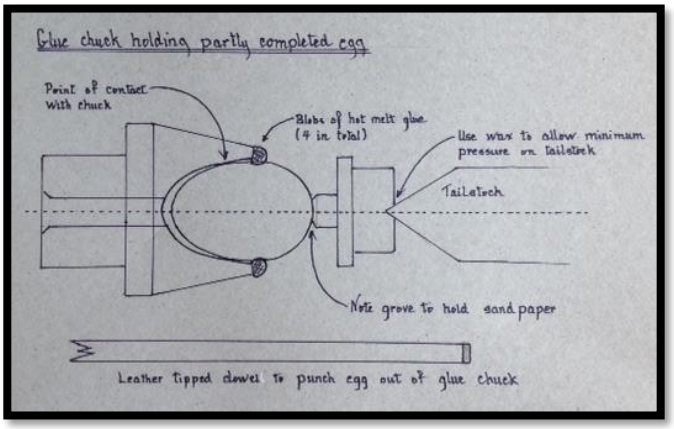
I then shape the large end, leaving a tenon about 5/8” in diameter with a groove between the tenon and the egg. (See diagram below) The groove allows me to sand right to the base of the curve.

After sanding to 400 grit, I apply a mixture of equal parts tung oil and Varathane. I then wait for at least several hours to ensure that the finish has sufficiently hardened. (I typically have several eggs on the go to occupy this time.)

Once the finish has hardened, the egg is mounted in the glue chuck. (I find that I need several chucks as the eggs vary slightly in size.)

The diagram at right shows the basic set-up.

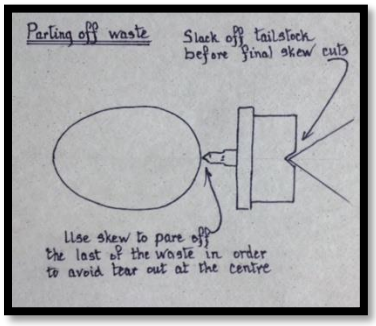
A piece of scrap wood is mounted in a 4-jaw chuck and the inside is hollowed to provide a secure fit for the egg. Note the point of contact with the chuck as illustrated in the diagram.



A series of “glue” slots are then cut in the rim of the chuck and a through hole is drilled in the centre to enable removing the egg using a leather-tipped dowel.

Before inserting the egg in the glue chuck, put a little wax in the pilot hole where the tailstock will engage. This will allow you to use **very little** pressure and avoid marring the egg. Only tighten the tailstock until the live centre barely turns.

To secure the egg in the chuck and prevent it from turning, I apply globs of hot melt glue in 4 of the slots. Once the glue has set, the tailstock can be slightly tightened.



You can then finish turning the egg.

You must be careful to avoid tear out at the centre point. When the remaining tenon is approximately 1/8”, back off the tailstock a little and use a skew for the final parting.

After parting off, I use a skewed negative rake scraper to refine the end point before sanding and applying the finish.

To remove the egg, insert the leather-tipped dowel into the headstock and with your right hand, apply some slight pressure evenly on the end of the egg. A smart whack with a mallet and the egg should pop out without any marks on it. Any glue residue on the egg can be removed with a paper towel and some of the finish.

To remove the hot melt glue from the glue chuck, I use a large nail.

I usually apply one or two additional coats of finish off the lathe. When it has hardened, I buff the egg and apply a coat of carnauba wax.

A nicely turned egg in yew with a carnauba wax finish is a joy to handle. Grandchildren will love them, especially if the Easter Bunny drops them off!

EDITOR'S SELECTIONS

This exquisite bowl is the work of Tim Soutar. Turned from green Garry Oak, it has wonderful grain orientation, a slight concavity and the fine rim and feet provide a very attractive sense of balance.

It is 6" x 12" and is finished with Millies (Tung oil, Citrus Solvent, Beeswax)

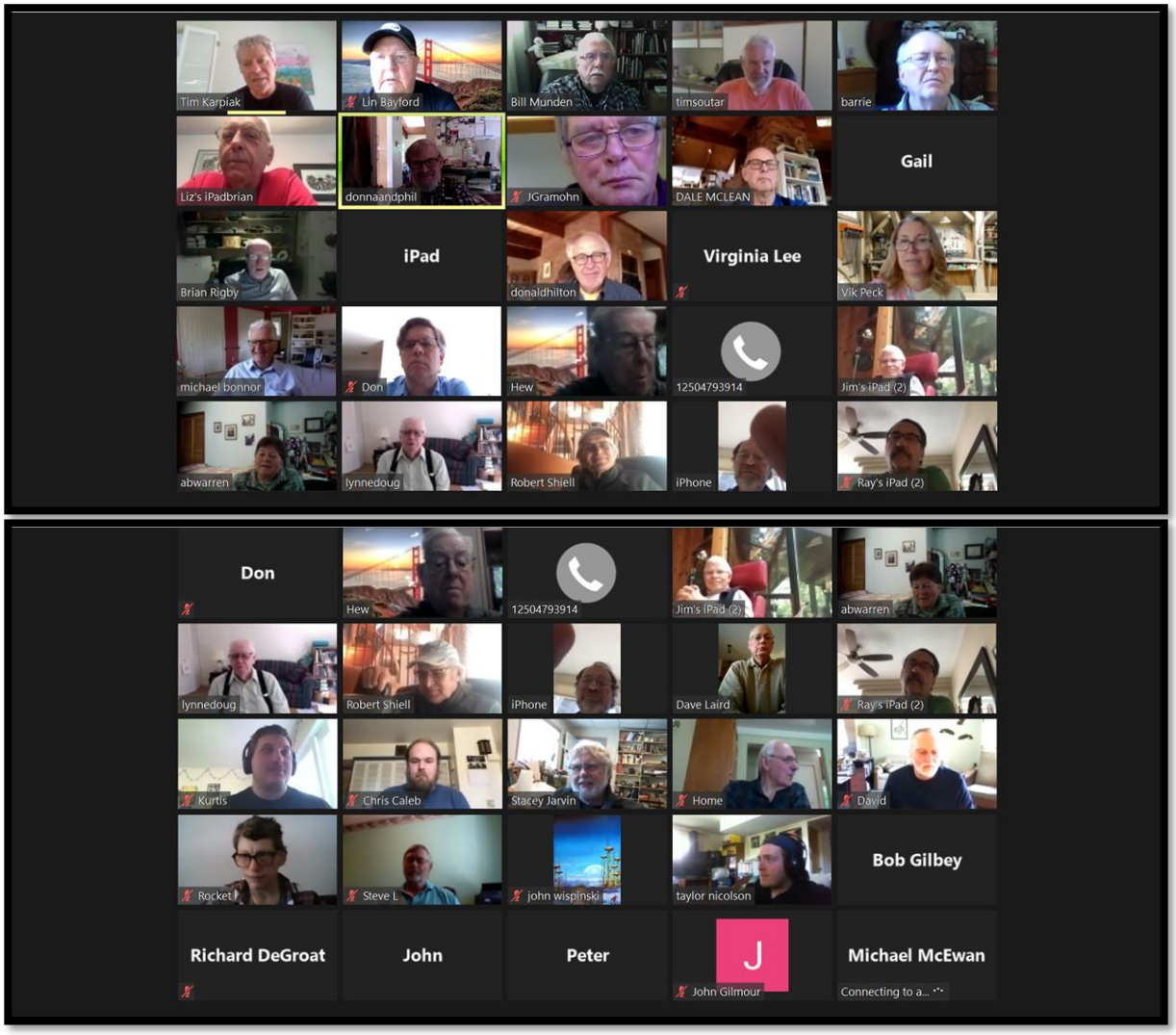
This wonderful 4" x 11" hollow vessel by Graeme Evans was turned from Maple Burl and finished with tung oil.

The form of the vessel does a remarkable job of matching and highlighting the unique features of the wood – the grain, the void and the "bulbs" at the rim. An impressive achievement.

And the addition of the inhabitant (at the suggestion of G's artistic director) introduces a wonderful sense of whimsy.

INAUGURAL ZOOM MEETING

A cast of …… tens and tens of people



PARTING OFF

Thanks to Tim K and the other members of the Executive for zooming along.

And special thanks to Vik Peck for a great demonstration and Gil Heise for his excellent note on turning eggs.

CONCLUDING THOT