

“How I Finish”

**Central Virginia Woodturners Describe
Their Finishing Methods for Bowls
and other Turned Projects**

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Introduction

Woodturners in search of effective ways to finish their bowls or other turned projects face a bewildering array of options which, especially for new or inexperienced turners, can be overwhelming. Oil, polyurethane, lacquer, or wax? Wipe-on or spray? What's the best way to sand or otherwise prepare the wood for finishing? Should I use a sanding sealer before applying the finish? Because the typical first-answer to these and similar questions is "it depends," further questions arise. As with numerous aspects of woodturning, even highly experienced turners often will offer different answers to these questions. Books and articles about how best to finish turning projects are widely available, of course, but, for the uninitiated, the learning curve can be steep. Unfamiliar technical language, deep descriptions of the chemical properties of finishes, and the complexity of procedural options can slow the learning process.

The finishing protocols set forth in the pages that follow should help to remedy these problems by providing readers with a series of concrete and detailed, step-by-step instructions for finishing turning projects. In addition to specific finishes used and descriptions of how to apply them, readers will find a rich trove of helpful information and nuggets of insight pertaining to a host of topics relating to the finishing process. Many contributors, for example, focus heavily upon the importance of sanding and otherwise preparing the wood for receiving a finish. Other topics covered include how to protect your eyes, lungs, and skin while finishing; how to prepare self-made finishes and abrasive pastes; how to treat tear-out, voids, or soft wood; how to ebonize wood; and more. Although this guide is intended mainly as a resource for new and relatively inexperienced members, my best hope is that even the exceptionally proficient turners among us will find it interesting and instructive to learn about the finishing methods used by their peers.

The origins of this project extend back to June of 2025 when, because of a miscommunication, a demonstrator for the monthly meeting failed to appear. CVW President Norm D'Allura pivoted quickly to a decision to use the meeting time as an opportunity for members to discuss a topic of perennial interest: finishes and methods for applying them to bowls or other turned projects. A lively and highly informative discussion ensued during which attendees heard numerous CVW members describe their finishing protocols, and answer questions about them. Unfortunately, the discussion was not electronically recorded, nor did anyone take notes.

At the Saturday Drop-In session held later that month, the discussion once again turned to finishing as attendees posed further questions about what they had heard at the previous meeting. The result? Again, lots of helpful information aired and discussed but no one took notes. As the meeting drew to a close, a number of us commented that it would be enormously helpful to CVW members, especially to those of us who are relatively new to turning, if someone were to talk individually with experienced members of our club who had given guidance and shared advice, and write-up detailed descriptions of their finishing protocols. In this way, new or newish turners would be able to consult a series of written, step-by-step accounts of how experienced turners finish their turning projects. And, if a question arose as they followed a particular set of

finishing protocols, it would be easy for them to contact the CVW member who had provided the protocols, in order to seek further guidance.

I volunteered for the project. My plan was to talk with members who had offered advice at one or both of the two meetings and, as well, to consult other experienced turners among the membership who would likely have good advice about finishing. After identifying potential contributors, I would ask each of them to write-up a description of their finishing protocols or, alternatively, I would interview a potential contributor and then write-up an “as-told-to” description of their finishing protocols.

The resulting compilation includes finishing protocols shared by fourteen CVW members, ordered alphabetically by the surname of each author. Eight of the contributions were written and submitted by the author. I lightly edited these submissions, mostly in order to impose a moderate degree of similarity of format across all contributions. Six of the protocols included here were written-up by me after interviewing the contributors. In the interest of transparency, the names of persons whose protocols were written by me are followed by an asterisk in both the Table of Contents and at the head of the first page of the description of that person’s finishing protocol. Every contributor approved any editorial changes I made to their submissions, or verified the accuracy and completeness of my write-up of their finishing methods.

I owe a debt of gratitude to the CVW members who gave generously of their time in order to contribute to this guide. Members of this club, to a remarkable degree, have always shown a cheerful willingness to share what they know about woodturning and attendant skills in order to help others learn the craft. This project was no exception, and I thank the contributors for making it so.

Ken Koons
Spottswood, Virginia

Liz Browne

Finishing Bowls

Sanding

- Start with a grit appropriate to the surface—120 grit to 180 grit is my usual.
- Focus on areas with tool marks, tear-out, or other concerns. Folding sandpaper over a small wood block helps keep the surface uniform. Sanding with the grain can also help with “hiding” scratches left by the sandpaper.
- Sand to at least 220 grit.
- Clean excess dust off of surface.

Sealing

- Coat with sanding sealer—a 50:50 mix of denatured alcohol and shellac. I use a glass jar, which I shake, and then apply the sealer with a brush.
- Once dry, sand again to perhaps 400 grit.
- Burnish the surface with wood shavings at increased lathe speed (at least 1500). You want to feel a bit of warmth and perhaps see a bit of a glow on the wood's surface.

Finishing

With Rub-On Polyurethane

- Use a clean paper towel to get the surface wet with polyurethane, and then burnish with the same paper towel at increased lathe speed.
- You'll see the surface shine up a bit, and the towel may get a little sheen on it too.
- Repeat this process two or three times, which should lead to a shiny, smooth finish that feels a little warm and dry.
- Burnish the surface again with the wood shavings.

With Wax

- If you want a glossy sheen, friction waxes are the way to go. Rule of thumb: be judicious with application—a little goes a long way!
- First, I use an abrasive paste, applied sparingly. Then, turn the lathe on and apply constant, heavy pressure while moving the paper towel over the entire surface, as if using an abrasive paper. Stop when you see a sheen. With the lathe still running, use a clean paper towel to remove any excess.
- Then I apply a friction polish and, with the lathe running, use the paper towel to apply heavy pressure while working over the entire surface. This will yield a bright shine.
- After reverse-chucking to remove the tenon (or blend-in a mortise), sand, seal, finish, and wax the bottom of the bowl as described above.

Scott Cassell

The finishing methods I use for my turned work are often dictated by problems I encounter—what I’ll call “areas of difficulties”—and sometimes, as well, by the type of wood used. This is especially the case for bowls and platters. Often, these difficult areas are found on the inside of the bowls, within the end-grain on opposite sides of the bowl. While this problem often carries over to the outside of the bowl, it is usually easier to deal with there.

My journey with wood crafting began long before I picked-up a lathe tool; I began woodworking by learning to refinish furniture. As a result, many of my finishing methods for turned projects are adaptations of methods I learned in refinishing furniture.

Sanding

- Turn the piece not faster than 750 rpm; usually, I keep the speed at 700-725 rpm during sanding.
- Unless there is heavy tear-out, I begin with 120 grit. I use pieces of sandpaper torn from a roll set or that have been cut into strips from large sheets. The size of these pieces of sandpaper are project dependent but generally they are less than 1 inch wide and range from 1.5 to 6 inches in length.
- For heavy tear-out such as often appears in spalted woods, I apply a small bit of sanding paste (see recipe below), directly to the sandpaper, which helps bind-up the torn-out wood. Using 100 grit—I rarely use sandpaper coarser than this—I reverse the direction of the lathe in order to prevent streaks or swirls that can result from sanding in the same direction around the piece. This also helps to eliminate much of the tear-out. I follow this forward-and-reverse lathe-spin direction through all the grits (120, 200, 320, 400, and 600), followed by gray, maroon, and amber Scotch-Brite pads. Occasionally, I sand further, using white Scotch-Brite and steel wool (000 and 0000). Sometimes, after finishing sanding with a particular grit and before moving on to the next, I sand manually in a motion perpendicular to the spin of the lathe, in order to remove any circular sanding marks.
 - Sanding Paste (plain), recipe: 50/50 melted beeswax & mineral oil. To get the correct ratio, I weigh the mineral oil using a digital kitchen scale and match it with an equal weight of beeswax pellets or shavings from purified beeswax blocks. Melt these ingredients in an old crockpot, stirring until all the wax is melted. Pour the mixture into an old “Tupperware” sandwich container, and cover with a lid. The solution does not harden; its consistency is smooth, like face cream.
- I often apply a layer of super-thin CA glue on bottle stoppers and Christmas ornaments. I always do this on pen/pencil kits as I find that this helps to build-up the finish on items that are handled frequently.
- For bowls and lidded boxes with troublesome tear-out, I use Triple EEE shine with the white Scotch-Brite.

Applying Finishes to General Spindle Work (Stoppers, Openers, Christmas Ornaments, and the like)

- Starting with amber Scotch-Brite I apply abrasive sanding paste (see recipe below), after which I use blue paper shop towels (full sheets cut into four smaller squares), to spin off the oil/wax for a cleaner surface.
 - Abrasive Sanding Paste recipe: Use the same mixture as above (plain sanding paste), but add a quarter-cup or less of diatomaceous earth (which will change the color of the solution). This paste is about 1500 grit and makes a nice, ultra-smooth finish.
- Sanding Sealer Application: I use a 50/50 cut of sanding sealer and denatured alcohol. Denatured alcohol acts as a penetrating agent—it takes all finishes into the wood pores/fibers so that they can penetrate further. I generally apply only one coat. This step often hardens the finish and allows pieces to hold finishes for a longer period.
- Shine Juice Application: Next, I apply “shine juice” (see recipe below), which produces a finish somewhat like a Mylands friction finish.
 - Shine Juice Recipe (a three-part recipe which I found on the internet and modified slightly): The three ingredients are prepared shellac, boiled linseed oil, and denatured alcohol. I use a clear, condiment squeeze bottle on which I have placed marks indicating equal thirds of its volume. After pouring the three ingredients into the bottle, a small bit of space remains at its top, which I fill with melted beeswax. (The beeswax generally stays in suspension but the bottle will need to be shaken before each use, and I keep a straightened, heavy paper clip nearby for use in removing globs of beeswax that sometimes clog the spout of the squeeze bottle).
- With the lathe off, use a paper square to soak the piece with Shine Juice. Turn-on the lathe, with the speed set at 800 to 1100 or so rpms, and buff the piece using a fresh square. Hold the paper square to the piece, moving it back and forth until the build-up of heat makes it impossible to continue to hold it. (Safety note: never grip around the worked piece or use a glove that cannot tear away easily).
- I generally apply 3 or 4 coats, with high-speed buffing between each.
- Optional Step: Burnish with wood shavings. (Safety note: This should only be done by an experienced turner. Never grip all around a piece). Fill your cupped hand with shavings from the turned piece, hold the shavings to it and allow them to slowly release around the piece as it turns on the lathe. Friction will quickly cause the build-up of heat. As a general rule, keep the rpms no higher than 750.
- Final Finish: I apply several coats, usually 3 to 6, of 50/50 polyurethane and denatured alcohol, with buffing between coats. (Note: I prefer Deft semi-gloss polyurethane but it is no longer being made; I will have to find a new/similar product). Six coats create a final finish that is impervious to penetration by alcohol. After the finish is fully cured, it is food safe.

Jeff Corwin

The methods I use exactly follow what Fred Williamson does for his bowls using Behlens Salad Bowl Finish, or what Mike Sorge does using TY Oil, or what Dennis Hippen does for finishing pens.

The one thing I do that may be useful for others in the club is to blacken wood using India ink.

I use Speedball black India ink applied with a triangular cosmetic applicator (cheaply available in pharmacies, with lots of them in a bag), on cherry wood for the collars and bases of hollow forms. I apply two coats of the India ink, which leaves the cherry wood absolutely black. After the ink dries, I use a 3M non-woven pad to smooth out any raised grain. Afterwards, I place them on a simple, self-made turn-table that I use when applying sprayed finishes, and spray them with Deft Lacquer (while using a carbon-filter dust mask and safety glasses). Sometimes I use semi-gloss Deft Lacquer and other times I give the pieces a final coat with gloss Deft Lacquer. The pieces typically come out looking very similar to the finials that I turn from African Blackwood, which are supported by the India-ink-blackened collars.

Norm D'Allura

Bowls (and just about everything else except pens): OB Shine Juice

1. Sand (power or by hand) with progressive grits from 80 to 320 or 400.
2. Coat with Sanding sealer – let dry a few minutes.
3. Sand by hand lightly with 320 or 400 grit until you can feel the raised grain disappear.
4. Polish with Yorkshire Grit Abrasive Paste as a liquid sandpaper to reduce scratches and give a sheen to the wood. Follow the instructions carefully and make sure no residual paste is left on the piece before applying the final finish.
5. Apply several coats of OB Shine Juice first at low speeds and then at 400-500 rpm to cure it.

Bottle Stoppers and Openers

- Follow steps 1-4 above and then a coating of McGuires Carnauba wax.
- Depending on the wood, you may want to use step 5 for a sheen before the wax.

Pens

- Steps 1-4 above.
- Apply cyanoacrylate glue (Starbond) medium followed by Accelerator – repeat four times. I use medium to build up the finish and level out any grain.
- Polish with white 3M pad or 0000 steel wool.
- Apply cyanoacrylate glue (Starbond) thin followed by Accelerator – repeat four times.
- Polish with white 3M pad or 0000 steel wool.
- Apply several coats of OB shine juice or ShellaWax.

OB Shine Juice <https://www.youtube.com/watch?app=desktop&v=7obdn9xDVaA>

- 1/3 Denatured Alcohol
- 1/3 Shellac
- 1/3 Polymerized Linseed oil (Tried-and-True, no stabilizers or catalysts)

Sanding Sealer

- 50% Minwax Sanding Sealer
- 50% Denatured Alcohol

Allen Driver*

A well-executed finish on a turned project requires a properly prepared surface. Sanding, which is a complex process, is as important as the finish that is applied. The principal focus here on finishing precludes a detailed discussion of sanding, but I offer some general points for consideration.

Various methods of sanding may be used (each of these has advantages and disadvantages)

- a random orbital sander,
- an inertia device,
- sanding as the object rotates on the lathe,
- sanding with the lathe running in reverse,
- sanding with the lathe turned off,
- sanding by hand, and
- wet-sanding.

With each of these methods, sandpaper is brought to the turned object. By use of a sanding disk mounted in a Jacob's Chuck that, in turn, is attached to the headstock, the work piece is brought to the sandpaper.

An inertia sanding device can be especially effective, for a number of reasons, not least of which is that the speed of the lathe will always match the speed of the rotating sanding disk (when using a drill for sanding, it is nearly impossible to match its speed to that of the lathe). Also, by changing the orientation of the sanding disk where it engages the wood as it rotates on the lathe, you can sand in both directions—forward and reverse—without reversing the direction of the rotation of the lathe spindle.

Additional Points about Sanding

- Sand at low rpms and apply only light pressure. The optimal speed for sanding is 500 to 700 rpms; too much speed (or pressure), will quickly destroy the sandpaper and heat-up the wood.
- Use water or denatured alcohol to dampen the wood in order raise the grain before final sanding.
- A light coat of lacquer thinner, applied under bright light, will make scratches and tool marks visible. Do this before application of the finish, to check the effectiveness of your sanding.
- Wet-sanding can be particularly effective when, after dry sanding, the wood (end-grain Walnut, for example), continues to show scratches or tool marks. Wet the wood with whatever oil you plan to use as the final finish, and sand to create a slurry. This method will also fill small cracks.
- After initial sanding, abrasive pastes provide an effective way to further smooth the wood and reduce fine scratches.

Sanding Sealers

Because end grain absorbs more finish than long grain, the use of a sanding sealer (after sanding and before application of the finish), will produce a more even finish. Sanding sealers are widely available but I use a mix of 60 percent lacquer and 40 percent lacquer thinner—it's inexpensive and virtually any finish can be applied over it. Further, several coats of this will, itself, form a hard finish, especially on woods that are more porous.

Repairs

Filling worm holes, cracks, or voids: use CA glue and a filler such as coffee grounds, brass, or some other material commercially available through wood-working supply houses. Also, epoxy putty works well. In making these repairs, it can be very difficult to match the color of the wood. For this reason, usually, it is better to fill with a contrasting color. Before undertaking repairs such as these, be sure the piece is worth the extra time and labor.

Finishes

The best finish to use for a given project depends upon both the species of wood and the type of use envisioned for it: will the item be decorative or ornamental, or will it be functional?

Available finishes include:

- CA glue—a very hard, durable finish; works especially well on pens.
- Shellac—well-suited for ornamentals that will not be handled very much.
- Lacquer—an easy-to-apply finish that is quick to dry to a high gloss. It's best to apply very thin coats with a spray can; since it dries almost immediately, many coats can be applied in one day.
- Wax (carnauba)—produces a very hard finish and typically is applied during the final buffing process.
- Polyurethane—These finishes typically are blends of various proportions of oils, waxes, and hardeners. Reliable brands include Minwax, Watco, and General Finishes. Poly finishes require 2 or 3 coats, with 24 hours between. Don't rush these finishes; they must cure in order to buff properly. (Note: Weather, temperature, and humidity influence drying time. Conditions of high humidity, for example, require longer drying times). Flood the wood—totally saturate it—then wipe dry. You want the finish in the wood, not on the wood. Note that you don't have to sand between coats. After 2 or 3 coats, you can buff to a very high gloss. If buffing creates too much glare, you can scratch it off by rubbing it with 0000 steel wool or Scotch Brite. (Note: in buffing, do not use White Diamond on Walnut or any dark, porous wood; it will leave behind an undesirable white residue). Poly produces a good, durable finish for salad bowls.
- Oils—A variety of oils are available. Note that unadulterated, pure Tung Oil will never dry. Mahoney's Oil is slow to dry. TY Oil, by contrast, dries quickly. Odie's Oil produces a superb finish on Walnut. Apply it, let sit for 30 to 40 minutes, wipe off, let stand for a

few days, and then buff with a paper towel. (Note: Any oil finish will cause white or light-colored wood to yellow over time. To keep light-colored woods light—such as Maple, for example—use a water-based poly finish, which also offers some protection against UV light).

General advice: Find a finish you like and fully develop good technique for applying it. Be careful not to try every product available because they are expensive and have a limited shelf life.

Fred Guendel

I am a hobbyist. I turn for my enjoyment. As a hobbyist I can choose finishes based purely upon my sense of what looks good, what I prefer to apply in my garage workshop, and my timeline. If I turned for income, I would likely choose different finishes and, maybe, different finishing methods.

Surface Preparation

It goes without saying that surface preparation is critical to a nice-looking finish. Cutting a clean surface, and/or scraping it, and sanding, are all equally valid ways to produce a finish-ready surface. There are several ways to sand a turned surface: part of a sheet of sandpaper, a power sander, and/or an inertial sander; they all work. None of them is THE only or best way—every piece of wood and every project is different. I do what works, that day, on that project.

This said, I will generally scrape (preferably shear scrape) to eliminate/reduce picked-out/torn grain and tool marks, and then start sanding with the least-coarse grit I can get away with—possibly as high as 180 grit but usually 120. When sanding, I use the least amount of pressure I can in order to avoid adding deep scratches to the project. Then, I stop my lathe, inspect the surface, and hand-sand with the grain. When I'm happy with the surface, I rinse-and-repeat through 600 grit. I do not use sanding sealer, nor do I use abrasive pastes; lots of folks achieve good results with them but I don't use them.

Finishes

I finish most often with **oil**, occasionally with an **oil/varnish blend** (Watco), and very rarely with a film finish (almost always **shellac**).

Oil

I favor an oil finish because I like the way it looks. My preferred oil finish is genuine tung oil (currently, Tallahassee Tung Oil), cut with gum spirits (genuine turpentine—currently Creekwood Naturals). I like the honeyed hue that tung oil produces. Also, mixed with genuine turpentine it smells just the way I think a finish should smell. Tung oil cures hard and wears well. It is also important for me to know what is in the finish. The downside, however, is that tung oil is slow to cure.

Application: I apply a 50% tung oil/50% turpentine coat to the project (on the lathe or off), let it soak in, then repeat until it does not readily take more oil. I then set the piece aside, but wipe-up excess oil that comes to the surface during the first day or two. The piece cures after a week or two. At that point, I evaluate the project to see if it needs another application of tung oil. Once the final application is cured, I typically buff the project using the Beall buffing system. The tripoli and white diamond polishes eliminate any slight sanding swirls that might remain; the carnauba wax adds a nice shine.

Oil/Varnish Blend (Watco)

Watco is a blend of polymerized linseed oil, alkyd varnish, and mineral spirits (or at least I think so—honestly, nobody knows what is in it or any other commercial finish). In any case, I think it looks good and wears well.

Application: The same as oil (see above). It can be reapplied every other day and cures completely in a couple of weeks. Once cured, I buff this finish.

Shellac

My preferred shellac is composed of super blond shellac flakes (I buy it from Tools from Working Wood) dissolved in Everclear (if I can get it; it is not legal to sell Everclear in Virginia), or 99.9% pure anhydrous, medical-grade isopropyl alcohol (a virtually water-free alcohol). (Editor's note: Everclear, commonly known as grain alcohol, is a clear, odorless, flavorless spirit that is typically 95 percent alcohol by volume—or 190 proof. It is highly flammable. Also, ingesting it is highly associated with alcohol poisoning, which has led to its being banned in many states).

Super blond shellac, which has just a hint of yellow, can be built to whatever level of gloss you like, and since the alcohol in which it is dissolved flashes off fast, multiple coats can be applied in little time. This is another finish that I like because I know what's in it. And, if it's dissolved in Everclear, it's pretty safe.

Application: I make-up a ~2lb. cut of shellac. Once completely dissolved, I use an applicator pad to wipe-on a coat of shellac (it can also be sprayed, rattle can or sprayer) onto the project (on the lathe, or off). Then, let it flash off, and repeat. After the second application of shellac, I lightly sand with 600 grit, then continue to re-coat until I get the look that I want. After the finish completely cures—just a couple of days—I add a coat of wax. I do not buff film finishes.

Dennis Hippen*

For Bowls and Spindle Turnings (Two Methods: Plan A and Plan B)

Plan A

Two Products

- Minwax Sanding Sealer (water-based)
- Minwax Polyacrylic Crystal Clear Topcoat

Protocol

1. Turn bowl; if wet, let it dry for a few days.
2. With bowl on the lathe (for steps 2-6, keep the bowl on the lathe), sand to 400 grit.
3. Apply heavy coat of sanding sealer, then wipe off quickly.
4. Let dry.
5. Sand with 600 grit (this is a critical step).
6. Apply a coat of Topcoat; let it dry; sand with 600 grit and repeat if desired.
7. Take bowl off lathe and reverse chuck.
8. Tenon: take off (by sanding or cutting), or, if bottom of bowl is too thin, let it on.
9. Sand, at grits 150, 220, and 600, and sign.
10. Finish as above, steps 5-7.
11. Apply a second coat (dries in 15-20 minutes).
12. Let bowl sit for 2 days or so, to see if it cracks.
13. After 2 or more days have passed, with no cracks, buff using only carnauba wax.

Plan B

Use only one product: Arm-R-Seal Topcoats.

Protocol

Same as above, except:

1. In this case, the sanding sealer used is self-mixed with 50% clear shellac and 50% denatured alcohol.
2. Apply Arm-R-Seal Topcoats over sanding sealer (3 coats).

Jim Oates*

Sanding

On bowls, I make smooth shear cuts with a skew in order to reduce the need to sand. Initial sanding is with 220 grit and I stop at 400 grit. I want the finish on the bowl to be a little dull—to have the appearance of wood, not porcelain.

After initial sanding, I reduce still further the amount of sanding required by using a circular scraper to smooth the end grain on the inside of the bowl. Then, I rub both the inside and outside of the bowl with water, to raise the grain, and sand again with 400 grit.

Sanding Sealer

As a sanding sealer, I use white (clear) shellac diluted with denatured alcohol (50:50). It soaks in and raises the grain again, but also solidifies and hardens the wood. Sometimes, I do this twice. Afterward, I sand again with 400 grit—this is smooth enough for the kind of finish I prefer.

Finishes

I have two favorite finishes:

- 1) While the bowl is still on the lathe, apply coat of clear lacquer, using a paper towel. (In case of cracks or voids: apply a coat of thin CA glue into the void, then ground-up sawdust left from turning the bowl, followed by a coat of medium CA glue). Sand again with 400 grit. Apply another coat of lacquer and then rub down with 0000 steel wool. Sign the bottom of the bowl using India ink, and apply a coat of lacquer over it. (Note: Usually, I use wipe-on lacquer but if the bowl is textured, I use spray-on).
- 2) Use the same process as above (#1), but use water-based polyurethane instead of lacquer.

If I know the bowl will come into contact with water, I finish with TY oil, and apply many coats of it.

Tom Reeves*

Bowls

1. After turning the bowl, scrape and sand; use a card scraper for the inside, a random orbital sander for the outside.
2. Wipe with a damp cloth in order to raise the fibers (How wet is “damp”? Paraphrasing finishing expert Michael Dresdner: “as damp as a healthy dog’s nose”).
3. Re-sand, with sandpaper or a Scotch-Brite pad (or similar product).
4. Depending on the type of wood and in particular the prominence of its grain, coat with boiled linseed oil in order to pop the grain.

From this point forward, two alternate protocols (A and B), depending upon how the bowl (or other objects) will be used

Protocol A

Use this protocol on bowls (as well as plates, platters and the like), which may come into hard contact with sharp objects, for example, a knife. NO HARD FINISHES; a knife could break-off the finish or force bacteria into the wood. Instead, soak the item in mineral oil, as many times as it will continue to absorb the oil. An additional note regarding the virtues of mineral oil: In a year or so, the end-user of this wooden ware will need to refinish it. Whereas other types of oil finishes are sometimes hard to find and expensive, mineral oil is readily available, relatively inexpensive, and easy to apply.

Protocol B

This finishing protocol is for objects destined for “normal” use—wooden ware, such as spoons, forks, boards, cereal bowls, salad bowls, candy dishes and the like, that is not likely to come into contact with a sharp knife.

1. Sand to at least 220 grit, perhaps 320 grit.
2. Apply sanding sealer—1 to 3 coats, with light scuffing or sanding between each coat, followed by wiping with a damp cloth.
3. Apply plain Minwax, which is a fast-to-dry, glossy polyurethane finish (gloss holds-up better to more frequent use than a flat or a satin finish).
4. Apply 3 to 6 coats of Minwax, scuffing lightly with a Scotch-Brite (or similar) pad between each successive coat.
5. After the final coat: before using the object, let it dry/cure until no odor remains, which may take 3 to 4 weeks.

Salt and pepper mills, pens, and candle holders

After all sanding, application of boiled linseed oil, etc. (see steps 2 to 5 above, under “bowls”), apply Shellawax Liquid Friction Polish and Shellashine Paste Wax.

David Shombert

My Finishing Journey

When I started turning (sometime around 1995), I was learning from an older gentleman named Paul Weinberger, of Weston, WV. Paul was retired from a life as a patternmaker in the once-thriving West Virginia glass industry, and I was fortunate to be studying with him under a grant funded by the National Endowment for the Arts. Mostly, what we made together was segmented work, which was his specialty, but I also learned his approach to many other aspects of woodturning and to craftsmanship in general. And I learned what it meant to have patience.

It was characteristic of Paul that once he found a way of doing something that gave him the results he wanted, he stuck to that method. And so it was with finishing; he occasionally used lacquers, either sprayed or brushed, but his favorite was Watco Danish Oil, applied by hand with a paper towel. Scott brand “shop towels”—the blue ones—were a good choice because they’re lint-free. Here’s his method:

- Cut one towel into four squares.
- Fold one of the squares into a small pad and soak it with the finish.
- Wipe it over the entire surface and rub it in for just a few minutes.
- Wipe off the excess with a clean “shop towel,” turning the towel frequently and taking care not to leave pools of finish anywhere.
- Let the piece sit overnight in a warm place, such as under an incandescent light.
- Repeat that process several times.

Usually, he would buff the piece by hand with a clean cloth after the last coat was completely dry.

The original Watco finish was prone to spontaneous combustion; the finish dries in an exothermic reaction, giving off heat, and rags or towels that are soaked with it and left folded up can ignite hours later. Spontaneous combustion results from a certain amount of carelessness on the part of the user, and a few houses burned down as a result. This happened often enough that Watco went bankrupt from the lawsuits that were brought by some of those users. Years later, another company bought the rights to the name and introduced a new line of finishes that are now marketed under the same name. I’m not familiar with the new ones; I would guess that they don’t pose the same danger, at least not to the degree that the original did.

I used Watco Danish Oil for a few pieces in my very early days, but I soon switched to a similar finish sold by Woodcraft. I’ve forgotten all the reasons for that switch, but I think it was mostly availability. The Danish Oil was often hard to find. I lived in Elkins, WV, where there were no woodworker’s supply stores, so I had to resort to mail order for almost everything. Woodcraft, a West Virginia—based company, had an extensive line of finishes that included one that was similar to Watco. It was sold under the Woodcraft label and no longer appears on their website,

but I'm sure they have something similar today. It worked well for me, in that it looked as good as the Watco Danish Oil, but it had a couple of drawbacks:

- It stunk to high heaven. My shop was inside our house, and the smell wafted upstairs into the living room.
- The shipping charges were \$7.50, almost as much as a quart of the finish (\$10.00).
- It only came in quart cans, and one can lasted me a long time; I didn't turn that much. The finish would dry out in the can before I had used even three-fourths of it.
- It also presented the danger of spontaneous combustion.

Eventually, Walmart and Ace Hardware came to town. Each of those stores carried a full line of Minwax products. On the recommendation of another woodturner, I tried Minwax's Wipe-On Poly. To my delight (and my wife's), it is almost odorless. Also, it's available in a pint can and is not expensive. The label carries no warnings about spontaneous combustion; being somewhat skeptical, I called the company and spoke to one of their engineers. He was polite, professional, and knowledgeable. He assured me that its components did not—could not—spontaneously combust.

All of that happened around 1995 to 1997. I occasionally experimented with other brands and even took a turn at mixing my own finish, using tung oil, spar varnish, and Japan drier. I tried those things because I read and heard about other woodturners doing it. I figured they must be on to something. Eventually, I gave all that up. To this day, I use Minwax Wipe-On Poly almost exclusively, applied as I've described above for the Watco finish. I usually put on four coats, with one day of drying between them. Despite the engineer's confidence in their product, I take precautions with the towels anyway; I spread the soaked ones out on a concrete floor, well away from anything that will burn, and leave them to dry overnight.

Somewhere along the way, I discovered the Beall buffing system. I use that on nearly everything. While we lived in Elkins, I sold my work through the local artist's co-op and through Tamarack. Many, many people told me that they really liked how my works felt in their hands; I attribute that mostly to the buffing process.

I do the buffing with the wheels mounted on my lathe (as opposed to having a dedicated motor like the one Baldor makes). Variable speed helps to get the most out of the buffing process. I've made a few things that, for one reason or another, I did not want to buff with the Beall system; I buff those by hand with a balled-up regular paper towel. The paper towel is very mildly abrasive and will do a decent job with a little elbow grease. The finest grade of Scotch-Brite pads will also work.

A Few Other Things to Note

- Wipe-On Poly is a lot easier to manage if it's not in its original container (with the difficult plastic cap). When I first open a new can, I transfer it to an empty dish detergent bottle, the kind with a flip-up cap. I also save those flip-up caps and use them to replace the ones that, during use, get clogged up with cured finish.

- There's a product called Bloxygen that comes in a spray can, intended to preserve the finish once it's opened. I think it's just nitrogen, which is relatively heavy. You spray a very short burst into the opened can—just enough to displace the air that's in there—immediately before you put the lid back on to store it. The layer of nitrogen keeps the liquid below it from oxidizing. It works; my finish lasts a lot longer in the bottle when I use that stuff.
- It's pretty well established that all oil finishes are food-safe once they've cured. Despite this fact, there are some items that will be easier to sell if you use something that's well known to be benign. Baby rattles are an example. A new mother doesn't want to hear about Bob Flexner's book on finishes; she's much more likely to buy a turned rattle if it's finished with mineral oil. When I make those, I just submerge the finished rattle in a jar of baby oil for a couple hours, then take it out and wipe off the excess.

About Sanding

I use whatever seems to work on the particular piece being sanded, with the following as choices:

- Power sanding, i.e., 2-inch discs (the gold ones, with a wavy edge).
- Using a self-powered, or "inertia" sander, where the disc is powered by just being in contact with the spinning wood. Sorby makes one that they call the Sandmaster, which sells for about \$60; mine is a homemade version that cost about \$5.00 for the parts. Successful use of it requires a little practice.
- Hand sanding with the wood spinning.
- Hand sanding with the wood not spinning.

On a given project, the sanding method that works best depends on the wood, the quality of the sandpaper, and my level of patience on that particular day. In any case, good lighting is essential.

Mike Sorge

Primary Finishing Choices

There's a myriad of wood finishes available and a wealth of finishing information shared on the internet, much of which I haven't tried. The finishes I'm pleased with and primarily use fall into two categories that I describe as **Utilitarian Finish** (100% organic food safe) & **Art Finish** (non-organic hard finish with drying agents). Though many non-organic finishes with drying agents are considered "food safe" after 30-90 days of out-gassing, they're still not 100% organic food safe finishes. Using a 100% organic oil finish simplifies the "food safe" argument for me; we (Cindy and I) simply prefer, and customers like, knowing the finish is 100% organic and food safe from the get-go, and reasonably easy to care for.

Utilitarian Finish

For my roughed out, adequately dried, then final turned salad bowls and such, I primarily use 100% Organic TY Oil as my go-to choice. TY OIL is a mixture of clear Shea Nut oil and Flax Seed oil, which gives good fiber-fill and dries a little quicker than other 100% organic oils. I have also used and recommend organic Mahoney's Walnut oil. Regarding TY Oil and stains, Cindy once served a nice beet-laden salad in her large, cherry salad bowl. The beet juice left some red stains in the bowl which she removed by washing/scrubbing with baking soda (some folks actually like the various colored stains inside utilitarian bowls). The care instructions we share are, "Simply hand wash with mild soap and water, air dry, and at some point in time after many uses, apply a single coat of organic oil to refurbish the wood finish." After the TY oil has dried, I may even wax buff with the Beall buffer.

Notes

- 1) 100% organic oils are best used on dry wood. If applying organic oil finish to fresh-turned wet/green wood, the wet wood oil and organic finish oil may not mix well, possibly causing a rougher (grain-raised) finish and/or an unwanted odor. When I green-turn an item and wish to apply a finish before it has thoroughly dried-out over several days, I found that using a non-organic finish with drying agents yields a better result.
- 2) I do not typically turn utilitarian salad bowls and such that have punky areas, since soft areas in the wood do not have the durability to hold-up to utilitarian use. Otherwise, for soft, punky and/or heavily spalted wood, I would likely use both a sanding sealer and non-organic finish with drying agents, which would fit under my "Art Finish" category.

Art Finish

For most of my non-utilitarian items, I use a Danish Oil Natural (clear) finish, a penetrating blend of oil and varnish (varnish is a transparent, hard-drying liquid of resins, oils, and solvents that help prevent warping, cracking and discoloration, and which reduce environmental impact from elements like humidity and temperature fluctuations). One can find several homemade formulas/variations of Danish Oil that all finish nicely, with a good measure of durability. The

Watco brand of Danish Oil Natural (clear) is readily available at local hardware stores—Rockingham Cooperative Ace Hardware, in Stuarts Draft, usually has it in 1 gallon and 1 quart metal containers.

Notes

- 1) In a separate room with adequate ventilation or outside in good warm weather (above 65 degrees), I apply two or more coats as needed, 15-20 minutes apart, usually until the end-grain doesn't absorb more. If desired, one can apply an additional topcoat such as polyurethane after 72 hours of drying (I usually don't apply a separate topcoat).
- 2) After a minimum of 3 days of drying, I use the Beall Buffing System with bar grits of Tripoli, White Diamond and Carnauba Wax. Buffing puts a beautiful warm glow on the Danish Oil finish. With dark woods such as Black Walnut, I skip the middle White Diamond buffing as it can leave unwanted tiny white particles in the wood pores that unnaturally lighten the wood. I found by doing a thorough initial buffing with Tripoli, I don't need to buff with the White Diamond.
- 3) All oil-based finishes enhance the natural look of the wood and, with most woods, I like this enhancement. The exceptions for me are some very light-colored woods such as Ash. Since oil-based finishes will "yellow" the color of Ash and overly darken light, spalted maple, I will often use a water-based finish on such woods—it keeps the color "whiter," more contemporary (see accompanying photos).

Sanding

Lighting

Very bright lathe lamps are absolutely critical for confirming both clean final cuts and thorough sanding. The lamps I use and recommend are the 30" long, adjustable-neck, magnetic lathe lamps like the Aurora and Super Nova by Woodturner's Wonders.

Tools & Tool Work

The quality of one's final cuts determines which grit to start with. With well-shaped and sharpened tools (primarily a bowl gouge for me), applying excellent tool alignment and patient tool speed will facilitate smooth, final thin cuts, allowing sanding to start with a higher grit, thus saving some sanding time.

Lung Protection

I use the Peke Safety Power Cap for turning and the Breathe-Cool fresh-air turbine pump system, by Turbine Products, with 50' of hose and a white "bump-cap" helmet for sanding, available at turbineproducts.com.

Ear Protection

Both my air compressor and dust collector are in the adjacent garage so as to minimize noise. I put my Bose noise-quieting Bluetooth headphones over the helmet and listen to nice music while turning and sanding.

Tools and Process

I primarily use 2" and 3" wavy (scalloped) sanding discs, Velcroed onto ½" or ¾" thick foam, wavy "interface pads," which, in turn, Velcro onto the mandrel. I use the 2" setup for smaller items and 3" for larger items. The foam interface pads adjust nicely to any/all surface curves, allowing efficiently aggressive sanding (I always use foam interface pads). I keep on-hand a full inventory of wavy grits 80, 100, 150, 220, 320, 400 and 600. I may at times begin with 80 or 100 grit, but I strive for finishing cuts that allow me to start with 150 or possibly even 220 grit.

Note:

- 1) Almost all my work is power-sanded using the short-angle, well-balanced, electric Makita DA3010F drill, which has excellent power and speed (I keep my Makitas set at max speed). I have one Makita setup with a 2" foam interface pad on a 2" mandrel, and a second Makita set up with the 3" foam interface pad on a 3" mandrel; I simply change-out the wavy sanding discs as I go through grits. I've had my Makitas 15 years and they are still going strong. I've only had to change the contact brushes after years of use. Makita also makes a battery version but it is not as powerful.

Three Steps of Sanding

First: I begin sanding with whatever grit is necessary according to the quality of my tool work, and work my way up through 320 or 400 grit, making sure to remove all scratches created by each previous lower grit. I use my air compressor to blow off dust between grits. I adjust two bright lathe lamps, placing them close to the sanding area in order to reveal the quality of sanding with each grit as I sand.

Second: Using a spray bottle, I spray a full coat of water on the finely sanded wood, which raises the end-grain. Then, I use a clean, old hand towel to lightly wipe off any excess water, and let the item completely dry.

Third: Once dry, the wood feels less smooth with grain raised. I then sand the entire surface one last time using 400 or 600 grit.





Don Voas*

For bowls, I use a Tung oil finish originally developed by Dale Winburn, the formula for which is:

- One part spar varnish
- Two parts pure Tung oil
- Three parts mineral spirits

- I sand to 400 grit and then apply a sanding sealer, after which I apply the first coat of Tung oil finish. I let it soak-in for 10 to 15 minutes, and then wipe-off the bowl.

- I apply a second coat, and wipe it until the wood doesn't shine—there are no glossy spots.

- After it is dry to the touch—usually an hour or so later—I apply a third coat of finish. I wipe it on and then wipe it off.

- After the third coat, the bowl—especially if the wood is porous—may require a fourth or even a fifth coat, applied in the same way as above except that, for these coats, allow the bowl to sit for at least 24 hours, then wipe on the Tung oil and wipe it off.

- Note: All of these coatings should be thin. Also, the finish should be applied in a dust-free area, separate from your shop. Otherwise, ambient dust will settle into the finish.

- Depending on the nature of the piece, sometimes I will at this point buff the bowl, using the Beall buffing system.

- As the final finish, I apply a coat of Renaissance micro polish.

Peter Welch*

For most of my work other than bowls, I use three different oil finishes:

- 1) TY Oil
- 2) Walrus Cutting Board Oil
- 3) Mineral Cutting Board Oil

Regardless of which of these oils is used for a given project, I apply only one coat (I want to leave the surface somewhat porous, so that it will accept subsequent coats of maintenance oils such as olive or coconut oil). After the oil dries, I apply a self-made wax composed of 2/3 beeswax and 1/3 Walrus oil (an organic version of Tung oil). In an old crockpot, I melt the beeswax and then add the Walrus oil. I pour this mixture into 4-ounce tins for hardening and eventual use.

Occasionally, and especially for treenware, I use pre-catalyzed lacquer, which is food-safe after 72 hours. I apply one coat of lacquer, sand at 600 grit, and then apply a second coat.

Bowls

In preparing a bowl for finishing, I typically sand to 220 grit. I try to start at 180 grit but, depending on the nature of the wood and the possible presence of tool marks, I may have to begin with 100 grit. After sanding with paper, I sand to a higher level by using Acks Abrasive Sanding Paste or Yorkshire Grit. I finish most bowls with OB Shine Juice (a mix of 1/3 each of denatured alcohol, clear shellac, and boiled linseed oil), but sometimes I use TY Oil. Both of these finishes are organic. I do not use sanding sealers.

Fred Williamson

Sanding and Finishing Tips

There are a number of things I've learned about finishing from over fifty years of woodworking. Wood color and grain is so interesting and lovely on its own, but it only really jumps out with a good finish on it. There are so many finishes out there, and so many approaches to using them, and certainly there is no consensus on what makes the perfect finish. I go with as clear a finish as possible to feature the wood as accurately as possible.

There are a few basic principles that apply to all finishing techniques. No matter which finish you are using, the first essential ingredient is preparation, and the second is proper application. I suggest you find the process that works best for you and then hone it to perfection. It never works out well if the steps don't go right and you need to go back and fix some finishing errors, re-sand, or touch up some spots. This is particularly true when spraying a finish, but it also applies to the hand-wiped finish.

The goal is to achieve consistent and predictable results. You want the finished piece not only to look good but to feel good in the hand. The feel of the bowl in the hand does make a difference to a customer as well as to yourself. This is one time it really pays to be a little OCD.

Years ago I had a buyer who sold most of my bowls in the various galleries she owned, and one time she brought back a whole set of bowls to me to be re-sanded. I was much offended at first, as I had already spent a good bit of time sanding them (in a much more tedious fashion than I do now). But I had to admit they felt a little rough. That's when I learned to re-sand after the first coat of finish has dried.

Good preparation is vital. This means carefully sanding the wood to a smooth finish. You have to figure out what sanding process and finishing sequence works for you, and faithfully follow that routine, refining it year by year to get a consistent result.

I use a sanding system of home-made, foam-backed discs faced with leather, on a Makita sander/polisher, slowing it down some with a standard dimmer switch. The 5" PSA discs stick well to the leather, which has been primed with 3M feathering disc adhesive. DuraFlex D44 foam allows the spinning sandpaper to easily conform to the inside, concave curves as well as the outside, convex curves, sneaking up on irregular edges.

A piece of 1/2" plywood, of 2 3/4" diameter, is bolted to the sander drive stub. Using 3M 90 adhesive, I glue on a 4" disc of 1/2" thick medium-dense foam, to which a piece of thin leather is glued. I use the DuraFlex D44 foam from FoamOrder.com.

I now use Mirka Gold 5" PSA adhesive discs, which have a more consistent grit size than the 3M Gold I used in the past. The Mirka 100 grit gives more smooth cuts with fewer unwanted scratch lines than the 3M Gold 120 grit. I work from 100 grit to 500 while the bowl is still attached to the lathe.

I next use a small, 90-degree, random-orbital sander to remove circular swirl marks. This is a pneumatic Grex, again fitted with the DuraFlex 44 foam and leather disk, about 3" in diameter.

Finally, I polish with a right-angle or close-quarters drill chucked with a 3" disc fitted with the same DuraFlex44 foam but with a hook and loop covering, to which white Scotch-Brite can stick. This is the Scotch-Brite Light Cleansing Hand Pad 7445.

All these steps yield a smooth surface hopefully free of any visible sanding scratches.

Now, finally, for the first coat of finish! Formerly, I used to use an oil/varnish mix for my artistic bowls, and Behlen's Salad Bowl Finish for all salad bowls. Behlen's was FDA-approved decades ago (by the 1980s, at least). It was bought out by Mohawk a decade ago, and I only hope they have kept the same formulation. I switched to using only the Behlen's for all my pieces after seeing some bowls finished with the Behlen's looking good as new decades later, when they were kept for decorative use only. You can achieve higher levels of sheen by adding more coats. Use nitrile gloves to keep the finish off your hands and fingernails.

The trick is to wipe it on all over with a well-soaked Scott, blue-paper shop towel, and then promptly wipe it dry with a second piece of dry shop towel. This is vital, for if a drip is left here or there it will remain tacky forever, it seems. Thoroughly wipe the outside of the bowl while holding at one edge, then place the bowl down to wipe smooth where you were holding it, and then wipe the inside dry. Go around and around to make sure you get everything, then wipe with the grain across the bottom, and, finally, blend those straight-stroke marks to the round wipes about 4" out from the center. You are not wiping it totally dry, of course, but are leaving a very thin film. This will dry to touch in about half an hour. But you need to wait the best part of a day before putting on a second coat, in order to get a controlled application.

A day later, when you pick-up that bowl, you'll find that it feels way rougher than it first felt after being polished down to Scotch-Brite white. This is where the second step of sanding comes in. I usually dry the bowls in front of a fan for several days, if not a week, until they are thoroughly dry and through warping. Now is the time to flatten the bottom and re-sand that down to 320 grit and sign it.

I now go to a second random-orbital sander, this one adapted from the stock 5" diameter ones you can get at Lowes or anywhere. I cut the head down to 4" diameter and then fit it with the DuraFlex foam covered with soft leather. To this I stick on 600 grit Mirka PSA, and sand the entire bowl, to removing any raised grain without leaving swirl marks. Next is one last polishing using a random-orbital sander fitted with the 3"-diameter of Scotch-Brite white.

Now, when a second coat of the Behlen's Salad Bowl Finish goes on it should come out very smooth. This is the finish that feels so good in the hand, so smooth. If it's a tight grain such as hard maple, cherry, oak, or even an older growth poplar, a second coat should produce a good sheen without being too glossy. But a soft wood like red cedar or even red maple may take a third or even a fourth coat to come up to an acceptable sheen. I once had some buckeye that took 5 coats. At that point, you will probably have to buff one more time before the last coat.

This all sounds like a lot of steps and very time consuming, but the actual finishing part goes fairly quickly. If you are flattening, signing, and finishing a set of 5-10 bowls you will indeed

spend a number of hours. But for just a bowl or two it's fairly quick, especially given how fast the Behlen's sets up.

A lot of people allow the oil to soak-in for hours before wiping it off, or go to a buffed wax finish at the end. I am, frankly, too lazy for all that. I suspect that to some my finish is too dull or too plain. I personally prefer a finish that is not too glossy. Either way, the goal is to truly maximize and feature the beauty of the wood, and make someone want to pick it up and enjoy the feel too.

If you find a little scratch or smear in a spot after the final coat is on, the Behlen's finish has the wonderful property that, often, you are able to buff it out with the white Scotch-Brite. It's as if the heat of buffing slowly smears the thin finish over the offending spot, without changing the overall sheen very much.

There are images of my sanders on my website at <https://www.old.fredwilliamson.com/Pages-Methods/Sanding-Tips.html>. I need to update it, as I have changed some of my steps to simplify things, with wood bolted directly to the sander and only one layer of foam, but I can no longer edit that form of website.