Between Turns

Michigan Association of Woodturners

A chapter of the American Association of Woodturners

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CONTACT US

President: Tom Mogford

810-629-6176

Vice President:

Pete Buccelato

248-634-7622

Treasure: Tim Morris

810-229-7156

Secretary: Bob Roehrig

810-750-9132

Webmaster: Bob Roehrig

rroehrig@charter.net

Librarian: Tim Leright

734-595-0223

INSIDE THIS ISSUE:

Finishing Techniques

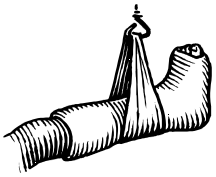
The April meeting brought an always intresting subject with all woodturners… **Finishing.**

Bob Shepard and Richard Rowland shared their knowledge of some of the finishing information they have picked up over the years.

Bob Shepard began the demonstration by giving the members some great information on some of the basic finishes we all use such as lacquer, polyurthanes, dyes and water bourne finishes. Richard spent the last half of the meeting showing the members a favorite finish of his that uses a water bourne process to give him an astounding high gloss that is as smooth as glass. Though Richards method is very time intensive, it is definitely worth it with the beautiful results that follows. A copy of Bob Shepards handout is included at the end of this newsletter.

Richard Rowland explaining the use of the finish he uses.

Get Well Soon



The membership at MAW would like to wish speedy recovery's to Herman Spaight and Betty Brandt. We missed you both at the April meeting and hope to see both of you at the May 4 meeting next month. Betty is recovering from knee replacement surgery and Herman is finishing up some rehab work and minor surgery. Best wishes for a speedy recovery from all of us!!

May and June Demonstrations

Upcoming demonstrations at the May and June meetings will include Sharpening techniques and the process of working with stave construction.

Sharpening is a fundamental requirement to all good woodturning. Many of the members have had questions relating to this in the past. The club will resolve many of these questions at the May meeting. Use of sharpening jigs, regrinding tools, special grinds, care and use of grinding wheels, and specialty tools will all be discussed next month.

Gary Smith will be featured at the June meeting to give us all some of his great insights to stave construction in relation to segmented turning. Gary is noted for his really special large turnings and has done some outstanding ones involving the use of staves in the construction process. Gary will be explaining the use and makeup of cutting sleds, and the many methods that one can go about using staves in constructing a vessel.

Show & Tell table

Great Treats Provided

Thanks goes out to Bill Magee or should I say to Roby Jarczewski for the outstanding chocolate chip cookies that she baked for the April meeting. It was a great treat that was enjoyed by all. Tom Mogford will be providing the goodies for the upcoming May meeting. Tom's wife always comes through with some equally good snacks. See you at the next meeting. Don't be late or you'll be without.

Library Updates

Tim Leright announced that anyone interested in segmented turning may preview the new demo disc provided by Lloyd Johnson from Woodturner Pro.
This disc will allow one to figure out all the cutting angles that are involved to make-up segments in segmented turning. The program also designs in 3D and will give the user a wealth of information in project design.
Also, the Masters Series of Video tapes that were provided to us by the AAW is now available for member checkout. *Once again….please be considerate and return promptly.*

Segmented vessel made using Woodturner Pro Software

Dues:

$95.00/year. This covers local and AAW dues..

Remit at the December meeting or by mail to:

Tim Morris, Treasurer
1673 Woodlake Circle
Brighton, MI 48116

Meetings:

will now be held from 1 – 3 p.m. on the first Sunday of the month at the workshop of:

Dave Gordon
10621 Milford Rd.
Holly, Michigan 48442

NEXT MEETING
May 4, 2007

Photo's

Photographs for this months "Between-Turns" were provided by Bob Roehrig and Pete Jordan. If you have digital photo's that you would like to have considered for use in the newsletter, please send them to the editor at:

rroehrig@charter.net

AAW National Symposium

By a show of hands at the April meeting, four members of MAW will be attending the AAW National Symposium in Richmond Virginia this coming June.
This will be a very exciting opportunity for at least two of our members because this will be their first time at a National symposium.
Hope to hear a great report at our July meeting from those attending.
HAVE A GREAT TIME!!!!!

MAW Web Site

Please visit the club's website at www.michiganwoodturner.org

If you have a favorite turning you would like to have posted in the "GALLERY", please email a digital picture to the webmaster.
rroehrig@charter.net

Fluted Segmented bowl by Gary Smith.

MAW Mentors

If you would like help getting started in woodturning or help with working out a problem, feel free to call any of the names listed below. As always, there is *NO CHARGE* to members of the *Michigan Association of Woodturners.*

Tom Mogford……810-629-6176

Pete Buccellato…248-634-7622

Bill Magee (Pen Turning)734-981-6117

Herman Spaeth…248-486-4720

John Becker (mugs, goblets, pipes)…248-851-0437
Bob Shepard (ornamental turning, segmented turning……..517-655-3967

Calendar

The calendar listings are an attempt to keep you up to date on upcoming MAW events as well as other events of particular interest to woodturners.

- **MAW meeting ..May 4, 2008**
- May Meeting demonstration will be on sharpening.
- Graeme Priddle Demonstration, May 19, 2008. Further information go to: www.johannesmichelson.com
- June meeting: Demonstration on Staves by Gary Smith

Wood finishing
Excerpts from Bob Flexner's book "UNDERSTANDING WOOD FINISHING"

When turning your piece, try to avoid grain tear out. This produces damage to the wood which is very difficult to remove by sanding. Use a sharp tool and a shearing cut. Ridges are not a problem and will sand out easily, however grooves are very difficult to sand out. Any glue residue, tool marks, sanding scratches, or other defects will become more apparent with application of stain or finish.

When you are sanding start with an appropriate grit, depending on your technique this might be 80 or 320. When progressing from a coarse to a fine grit you can increase by 150%. You would progress from 80 to 120 to 180, 320, 400, 600 or 100, 150, 220 or 240, 400, 600. Often when you progress to a finer grit you will notice sawdust accumulating in a scratch you hadn't noticed before. If this occurs, do not continue to sand with the fine grit, go back one or two grits and get the defect out and then progress. It will take you a lot less time sanding to get the defect out before progressing to finer paper. Use fresh, sharp sandpaper and remember worn out 120 is not 240 If the piece is still mounted on the lathe a very smooth finish can be obtained by using 3M abrasive pads progressing from green to red to black to white, the white having no abrasive.

Stains can be water soluble, alcohol soluble, oil soluble or dissolved in a gel. Water soluble aniline dyes are supposedly more colorfast than alcohol soluble, but this is not a practical problem for most of us as our work will probably not be around for more than a hundred years. Alcohol aniline dyes are easy to use, don't raise the grain much, and can be burned off to speed the process.

Our ancestors used linseed oil because that was what was available. They also used the pole lathes and treadle powered lathes. Linseed oil is still available but not a great choice. Better choices include walnut oil or tung oil and there are a number of mixtures of oils and varnish or shellac. Most tung oils are actually varnish and with mineral spirits which also is sold as wiping varnish. The varnish is made by cooking one or more oils with natural or synthetic resins. Wiping varnish is almost always mislabeled as "tung oil" you can detect this because either petroleum distillate or mineral spirits will be listed on the label. Linseed oil and tung oil have distinct odors. Neither of these are mixed with mineral spirits.
True polymerizing oil and wiping varnish dry hard and smooth when puddled on glass whereas linseed oil and Tung oil cure soft and wrinkled on a glass surface.

Wax is the least protective of all finishes. It is not a barrier against heat, water, or solvents. Shellawax and CrystalCoat are mixtures of wax and shellac.

Finishes can be divided into two groups: penetrating and film. Actually all finishes penetrate, but penetrating is the name most commonly used. Film finishes include shellac, lacquer, varnish, two-part catalyzed polyurethane, or epoxy, and water base. Film finishes protect better than penetrating finishes because of the thickness on the surface of the wood which protects from scratches, water, and humidity. However, if the finish is too thick it may crack and lead to other problems.

Evaporative finishes are shellac and lacquer. They are composed of long stringy molecules that become entangled when the solvent is gone. The spaghetti like molecules pack together and entangle when the solvent evaporates. When the solvent is reintroduced, the finish returns to a liquid form. The drying time of shellac and lacquer is entirely dependent on how fast the solvent evaporates.

Shellac was used on almost all furniture and woodwork made in the United States and Europe between 1820 and 1920. Then nitrocellulose lacquer became available and replaced shellac in the furniture industry in the United States. The amateur market for shellac disappeared in stages. In the early 1960s, polyurethane became more commonly used because of better durability. In the late 1960s and varnish mixed with mineral spirits and marketed as tung oil took more of the market, and in the mid-1970s Watco Danish oil (which is a mixture of oil and varnish) took a large part of the market. Shellac is a natural resin secreted by lac bugs which asked themselves to certain trees that grow in India. The word lac means 100,000 referring to the number of insects found on a single branch. Approximately 1 1/2 million bugs are required to make 1 pound of shellac.

Natural shellac resin is dark orange and contains about 5% wax. White shellac is preferable for light-colored wood and orange or Garnet is preferable for darker woods such as walnut and cherry. The shellac flakes are mixed with alcohol in different ratios. The 2 pound cut is 2 pounds of shellac flakes in 1 gallon of alcohol (1 pint of alcohol mixed with ¼ lb shellac flakes.) The alcohol is usually denatured alcohol as that avoids liquor tax. Shellac has some problems among these being lack of resistance to alcohol and water and heat.

Most lacquers are based on nitrocellulose, which is made by treating cellulose fibers in cotton or wood with acid and with plasticizers added. Acrylic lacquers made for use on automobiles are harder but usually

Aren't flexible enough for wood. Pros of lacquer are:it is fast drying, has reduced runs and sags when sprayed, excellent clarity and depth, and excellent rubbing properties. Cons include high solvent content (which is toxic). It is flammable and air polluting and has only moderate heat, wear, and chemical and water and solvent resistance. Don Derry, who makes hollow forms with a glasslike finish, uses lacquer which he sprays on in layers and then polishes.

Reactive finishes are varnishes and all two-part finishes. They are composed of small molecules that float in a thinner. With the help of oxygen or a catalyst, they cross link. The curing time of these finishes is dependent on the speed of the cross-linking not the speed of evaporation of the thinner. Coats of reactive finish don't dissolve into each other. It is best to let them dry hard and then abrade them so that the new coat adheres to the old coat.

Reactive finishes are difficult to damage and water and water vapor resistant. Evaporative finishes are easy to damage and not water safe. Water based finishes are difficult to scratch but easy to damage with heat or solvents and are not very water resistant.

Varnish is made by cooking a curing oil with a resin. Dryers are added to speed the curing Traditional resins were sap from pine trees, chemists made improved resins which are harder and not as yellow. All varnishes tend to yellow with time and that increases the thicker the varnish. Polyurethane resin is the toughest of the varnish resins. If you add new coats of varnish to old varnish, you must first steel wool or sand so that the new coat will adhere. Examples are Minwax, General Finishes, salad bowl finish, spar varnish, Formby's Tung oil finish. It is said that you can prevent air bubbles but by not shaking or stirring varnish, but you can't keep air bubbles out if you brush it. To keep the bubbles out you need to thin it with mineral spirits. Wiping varnish is an easy-to-use finish made by thinning varnish about half with mineral spirits. There aren't any products on the market labeled wiping varnish, but there are wiping varnish is sold as oil. Most wiping varnish is labeled Tung oil finish, Salad bowl finish, Waterlox, the Seal-a-Cell, Profin, or Val Oil. I find the wiping varnishes helpful in wood turnings because they are quick drying and less likely to pick up dust particles.

Two-part finishes include catalyzed finishes, two-part polyurethane, cross-linking water based finish, epoxy resin, polyester, ultraviolet cured finishes, and powder coatings. After these are mixed, they have a short pot life. I don't think they have a lot of use in wood turning except for goblets. The epoxy finishes are resistant to alcohol and water. It is difficult to get a smooth coat. The two-part finishes are often used on the top of tables in restaurants.

Water-based finishes are really solvent based finishes made with acrylic and polyurethane resins which are dispersed in water. The resins are manufactured in tiny droplets, also known as latexes, and then dispersed in water. The solvent evaporates slower than water, usually glycol ether, is added. After the water evaporates, the tiny droplets of finish coalesce and the solvent makes them sticky. As the solvent evaporates, the droplets stick together and harden, creating a continuous film. Once cured, water has no damaging effect but most solvents do. Advantages of water based finishes are: minimal solvent fumes, no fire hazard, easy brush cleaner, non-yellowing, and being scuff resistant. The cons include a bland washed out appearance on dark woods, being very weather sensitive during application, raising wood grain, only moderate heat, solvent, acid, and water resistance and all decorative steps are more difficult than with solvent-based finishes. Water-based finishes initially orange peel badly especially with spraying, but level out as they cure.

There is no perfect finish or there would only be one kind sold. When picking a finish you have three choices for its appearance: potential film build, clarity, and color. Sheen is not dependent upon the finish you choose but rather whether or not a flattening agent has been added. Wax and oil finishes don't cure hard so they have to be kept very thin. Thus they produce a natural or close to the wood look. Film finishes such as shellac, lacquer, varnish, and two part and water-based can be built up on the wood, but they also can be applied thinly. A built-up film finish can look cheap in open-pored wood such as oak and mahogany or it can look very refined if the wood is polished to an even sheen. Dewaxed shellac, lacquer, and alkyd varnish are the most transparent giving the wood an appearance of depth. Wax containing shellac, oil based polyurethane, water-based, and most two-part finishes are the least transparent. All finishes except wax and water based imparts some degree of warmth to the color of wood. Wax adds no color, just sheen. Water-based cools the color.

The difference between quality finish in a flawed finish has less to do with how you apply the finish than what you do to it afterwards. To finish a finish, you rub it with abrasives such as sandpaper, steel wool, rubbing compound or combination of these, sometimes using a lubricant such as wax, mineral spirits, oil, or soapy water. The idea is to level and smooth the surface using increasingly finer abrasives. It makes the finish feel smoother and gives the finish a softer appearance. Of course, this is not necessary over oil or wax finishes. Wet/dry sandpaper with a lubricant works well. When the sandpaper gets clogged you must clean or replace it or you will produce scratches. Steel wool has a little risk of clogging. Synthetic steel wool is a fibrous nylon coated with abrasive