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JULY MEETING HIGHLIGHTS

Leonard and Theresa Wilfret were our hosts this month in their air conditioned shop where we had a couple of presenters. Not only did we have Nelson's great donuts, Theresa made us treats as well. At the end of the meeting Theresa showed some members how to use MS Word to design scrowlwork.

First was Mark LeBlanc owner of LeBlanc's Fine Hardwoods (5024 Bluebonnet Rd., Baton Rouge, LA 70809, 225-296-5050, email: markleblanc1@cox.net). Mark is a woodworker who got tired of paying a premium for small quantities of hardwood (under 1,000bf). He already had a hot-shot delivery service so combined this operation with a fine hardwood sales operation complete with a custom delivery service. He sells most hardwoods in small quantities at 1,000bf prices. He deals only in select, better and FSA grades. Most of what he carries are 'Appalachian' woods — i.e., wood from Virginia and North Carolina — products that are very hard to get in Louisiana. He carries wood such as cherry, walnut (both in 'curly' and highly figured), butternut, persimon, elm and at least 10 other varieties. He can usually get about anything you might want including basswood (lemonwood), sassafras and more. He does have a minimum for delivery of about 75bf, but always call or email him to check. Mark said that what you are paying the most for today is fuel. Of course, you can always visit his operation and pick through what he has — most dealers won't allow you to do this!

Our next presenter was Leonard Wilfret who claims he is not an expert on photovoltaic power (PV) systems. But as he is the only member to have formal training in PV, he certainly qualifies. Leonard runs his farm on PV, i.e., most of his farming operations is run from a PV system including refrigeration and lights. Leonard discussed how he built his system which is an 'independent' — meaning that he can operate without the need of external power — as well as 'dependent' or net metering systems where you in effect, turn your electric meter back using PV power and get credit for the power you

send back into the electric utility grid.

He discussed the model systems in Austin, TX as well as California where the local utilities are required to install net metering systems. For example, Austin pays a rebate of \$1,000 per kilowatt of power that you send back into their grid up to \$15,000. This means that up to 75% of the cost of a PV system is paid for by the local electric utility. This also means that the payback period for your investment is very short and in a couple of years, you are getting electrical power for nearly free. Other States do variations on this as well including Hawaii, California, Minnesota, New Mexico to name a few.

Only after contacting the Louisiana Public Service Commission (including our regional commissioner, Dale Sittig) several times was I able to obtain a copy of a draft for the final rules under HB 789 (2003), that requires electric utilities in Louisiana to install net metering at your home or business. I've posted the draft rules under the Projects section of our web site but note that after two years, they still haven't finalized the rules. Still, this will give you an idea of what you need to do if you want to reduce your electric bill.

Leonard also showed photos of some of the equipment he uses at his farm including the 6 volt battery set, transfer switches and pulsing device that keeps the batteries from deteriorating. The batteries are marine grade, meaning that they have very thick plates for longer service. Leonard also showed how his home utility power can be easily disconnected when he needs to use his generator. While we had to edit Leonard's article on PV systems down to fit the format of the Newsletter, the full version is available under Projects on our website. He mentioned several web sites that might be of interest should you want to explore PV more closely including:

www.meridiansolar.com — PV design and installation
www.solarenergy.org — training on PV systems
www.dsireusa.org — state by state laws & regs on solar

Coming Up . . . Saturday, August 13 at the home of Bubba Cheramie where we'll show and discuss some woodworking videos.

SHOW & TELL THIS MONTH

Jeff Cormier brought photos of some of his latest work, a couple of cherry end tables (you can see them under Furniture in the Gallery section of our website). Jeff said that he got the cherry as scrap from a friend who had a large project. He mentioned that while he uses a lot of high grade plywood in his cabinet projects, he prefers to work with solid material.

Pie Sonnier is fortunate. He'll never run out of source designs for his beautiful vehicles. Pie said that while there are many plans available for these items, he mostly works from good die cast models he picks up locally. They are accurate and low cost. From the die-cast model, he develops a plan and parts layout for each vehicle. A new Chevy truck this month.

Barry Humphus brought a small bowl he turned as well as a blank he received from a friend. Unfortunately, no one could identify either wood. The wood for the bowl came from Belize while the blank came from Peru. Both had a redish-orange color and were very dense.

Gary Rock showed some bowls — a large chinaberry he made from the base of the tree. Another medium size item was of western red cedar and the final bowl was a combination of hackberry, walnut and torquois. See these and lots more at our web site at www.lcwoodworkers.com in the Gallery area.

MAKING YOUR OWN WATERLOX FINISH

At the July meeting of the Gulf Coast Woodturner's Association, Andy Chen demonstrated the use of the well-known finishing product *Waterlox*. Andy mostly does segmented bowls but that day was doing a solid one he turned for the demonstration. *Waterlox* can be used for most interior wood finishing, including furniture, bowls and even on floors. It is very easy to use as you wipe it on, wait a few minutes and wipe it off. Then wait 3 to 4 hours (over night is best according to Andy) and do another coat and then a third coat if needed. *Waterlox* results in a very fine satin to gloss finish, can work with most stains and after thorough drying, is food safe. In fact, it is somewhat like and a competitor of Watco Danish Oil.

Andy mentioned that you should always wear gloves — specifically nitrile gloves (available at WalMart) and not latex.

Latex gloves will dissolve after a short period of contact with *Waterlox*. This is not unusual as latex is dissolved by many solvents and acids. He also suggested using a ball of nylon stocking as an applicator and a paper towel to wipe the item down after a sort time (be sure to let the towel dry before disposal). Andy's recommendation regarding the gloves started me to thinking about what is in *Waterlox*.

Waterlox makes several finishing products including a version that contains citrus oil to improve it's smell and one designed for flooring. In all cases, it is very expensive (for example, a four ounce sample costs \$4.00). A gallon will cost you \$50.00. But it works well and is a good finish for many projects.

After giving *Waterlox* a couple of good sniffs at the demo, it later occurred to me what it was made of besides paint thinner and tung oil: benzene. What makes benzene bad to use

in a poorly ventilated area are two chemicals that comprise up to 10% of *Waterlox* according to it's Material Safety Data Sheet (MSDS): 1,2,4 methylbenzene and 1,3,5 methylbenzene — very nasty stuff. Don't inhale it and always wear nitrile gloves. You don't want it to be absorbed into your skin as it is a carcinogen (causes cancer). In fact I suggest also using a chemical respirator when you apply this product.

After looking at the MSDS and looking up the properties of the chemicals listed in various databases and other references*, I realized that I could make a finish that works like *Waterlox*, far less toxic and less expensive. The key was to find chemicals that perform the same functions and are readily obtained from local suppliers.

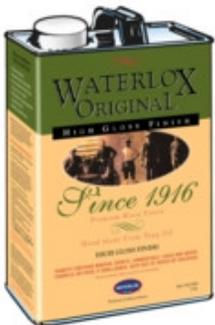
Note that the following varies among the *Waterlox* product lines because of different formulations. Stoddard Solvent (about 60%). This is nothing but regular (not odorless) paint thinner, *aka* mineral spirits or petroleum distillates. Tung oil (about 24%). Naphtha (about 10%). 1,2,4 methylbenzene (about 3%) and 1,3,5 methylbenzene (about 3%) — but up to 5% each depending on the formulation. Both of these methylebenzenes are hazardous and you can't just go down to the local home center or paint store and buy them.

Here's a formula that will take no longer to dry than *Waterlox*, safer, you can make it yourself, and it's cheap. Paint thinner about 60% ; Boiled linseed oil 30% — lots cheaper than tung oil and contains some metallic dryers. Boiled linseed oil contains a bit of metallic dryer (which helps it dry). Naphtha (10%); and Cobalt Naphthenate (Japan Dryer) less than 1% — in fact only 3 to 5 drops per gallon. I ended up making four 4 oz. batches of slightly different formulation to find the one that most closely resembled the same finish as *Waterlox*. Each was applied to a carefully prepared sample board. The one above had the best result.

The chemistry is simple: naphtha is mineral spirits before the benzene, toluene and xylene are extracted chemically so it contains some drying agents already. When you add the Japan Dryer, you offset the two methylbenzenes with a safer dryer (safer because you use a few drops instead of 6-10%). Using boiled linseed oil (which also contains some metallic dryers) instead of tung oil boosts the drying time back to *Waterlox* without the methylbenzene at a lower cost. There was no difference between what I saw Andy do and the results I got on a test piece. But Andy reminded us that the most important part of applying this product (or any other finish for that matter) is preparation before you apply the finish. Fine scratches, especially on end grain, will show up unless carefully sanded. For the exact formulation I used and the test results, see our web site under Projects. *Barry Humphus*.

*Reference: "Understanding Wood Finishes" by Bob Flexner — this a book every woodworker should read and own.

A reminder that we still do toys for the Womens Shelter. If you are already making some, that's great. If not, please get started right now for the Christmas season and deliver them to Barry at the Christmas meeting.



FILLING WOOD GRAIN WITH WOOD FILLER

Some woods have an open grain that makes it difficult to produce a smooth finish. To avoid this problem you can apply a grain filler prior to the application of your final finish. What we are talking about is not wood putty but grain filler.

Different species of wood have differing pore or grain characteristics. Some woods have no pores (or "grain") and some have small pores and others have larger pores. Woods with small pores are known as "closed grain woods" (e.g. maple or ash) while woods with larger pores are classed as "open grained woods" (e.g. mahogany or oak).

Depending on the wood and the finish you want, you may have to fill the wood's grain to get a satisfactory finish. To achieve a "Full" finish (like on a grand piano or dining table) it is necessary to fill the grain using a wood paste. A full finish is when the grain of the wood are completely filled and then leveled with the wood's surface, making the wood easier to finish with less coats of the final finish. By filling the wood grain you save time in finishing and money on materials. When the grain is filled (and therefore the filler and the wood's surface are smooth and level) you use less coats of the elected finish. You can do this with your final finish, but expect to do 6-10 coats with sanding between each one—too much trouble.

Paste wood fillers are made up of various materials such as calcium carbonate, barium hydroxide, barlite, silica, wood flour and, in the case of colored paste fillers, paste colorants. There are two different types of filler: Oil-based and water-based fillers. Oil pastes have an alkyd added to the filler, while water based fillers include water, glycol and amonia. Oil type fillers take longer to dry(1-2 days between coats) than water-based fillers and can be cleaned up using Naptha. For water-based fillers, you can dilute or clean up with water.

Paste wood fillers come in different colors and can be used to either match the wood's natural colors, or as a contrasting color, depending on the finish that you are trying to achieve. As well as the colored pastes, you can also use a natural paste. This is typically used on lighter colored woods and can also be mixed with other oil-based fillers to make other colors. Further, you can add universal colorants to the oil-based fillers (particularly the natural filler) in order to more closely match the color that you want. For water-based fillers you can add dry powder pigment to make your own colors. What ever filler you use, it should be reduced to the consistency of heavy paint.

Fillers can be applied with a brush, spread out with a plastic scraper or a cloth. Which ever application

method you chose, apply the filler *across* the grain in order to ensure that the filler is packed into the grain. Scrape off the excess *across* the grain with a plastic scraper.

As you first apply the filler notice it has a glossy sheen that begins to dull after a few minutes. Once the filler dulls it begins to harden. At this time, you should remove the excess paste before the filler becomes too hard as it is very difficult to later remove. Because of the limited time before the paste dulls, it is important to work on a small area at a time. Once it has hazed over after excess removal, buff with burlap using a *figure-eight* motion.

To remove the excess filler, use a plastic scraper or a nylon scrubbing pad (experiment with both to find one that suits your style). Remember, the more filler you leave on the wood, the harder it will be to sand off the wood later.

It's best to practice on a scrap piece of open grained wood before applying the paste for real. This will allow you to learn how the paste wood filler works without risking your project. As well as testing the filler paste application technique, take time to sand off this scrap piece of wood. This will allow you to test the final finish to make sure that the end result is what you expect.

In many cases, depending on the size of the open grain and the type of wood, you will have to do two fillings in order to get the filler level with the surface of the wood. Once you have filled the grain and removed the excess filler, sand the surface smooth and then clean up the surface with a tack cloth or air to remove sawdust and other residue. You are now ready to either stain the wood or apply your clear coating (varnish, wax, etc.). You can apply almost any type of finish, but if you have any doubts, consult the manufacturer of the paste.

While there are many good wood grain fillers on the market, they are hard to find at your local supplier (at least in our area). Even the Rockler store in Houston only carries one.

The best product I have found is Timbermate and made in Australia (see www.timbermate.com for U.S. suppliers or a sample). It is non-toxic, water soluble and reducible with water. Because you can reduce it with water, there's no waste if it dries up in the container—just add a little water.

This also means that it can be used as a grain filler (add 15% water), trowling application (add 5% water) or wood putty (straight). It comes in ten colors and you can get the tint base and make up your own color. It doesn't shrink, fall out or freeze. It's also low cost at \$2.95 for an eight ounce container. It does have the smell of, well urine, maybe Kangaroo! (Pekin Woodworkers Shop, www.woodworkersshop.com, 800-475-9663). *Barry Humphus.*