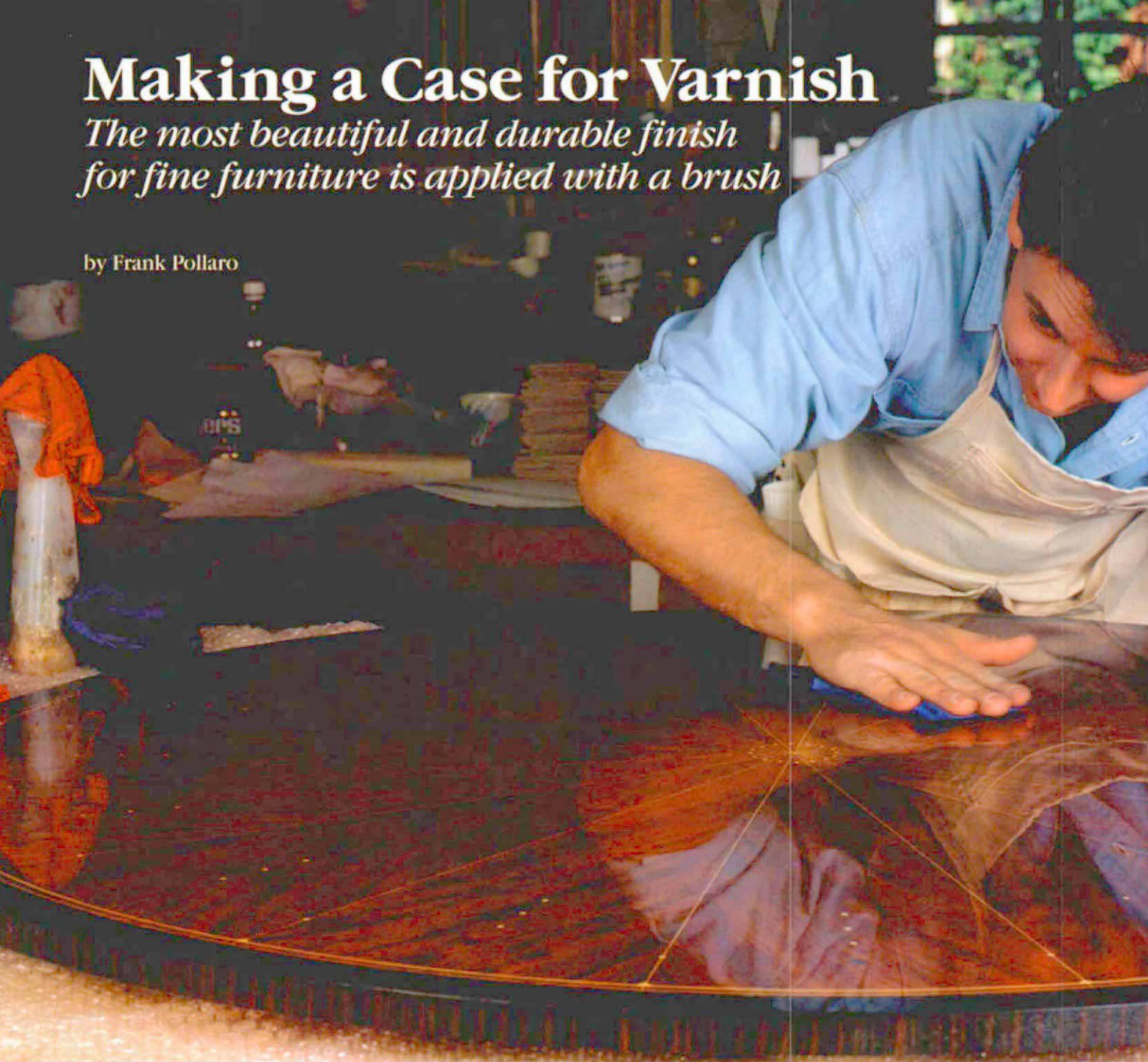


Making a Case for Varnish

The most beautiful and durable finish for fine furniture is applied with a brush

by Frank Pollaro



I'd just finished the most complex piece I had ever attempted, the reproduction of a desk by Emile-Jacques Ruhlmann, the greatest of the Art Deco furniture designers. The curvaceous desk, veneered in amboyna burl and shagreen, or sting-ray skin, had taken me more than 300 hours to complete. The original had been French polished, but I wanted to provide my reproduction with more protection than shellac affords while giving it the same clarity and brilliance.

I asked Frank Klausz, a friend and fellow

woodworker, what he recommended, and he suggested that I use varnish. I experimented on scrap boards until I was satisfied with the results. And then I varnished the desk. It was the perfect finish with all the depth, clarity and brilliance I had hoped for.

Now varnish is the standard finish for all my fine work (see the photo above). I've experimented with a number of varnishes and brushes and refined my technique. Now I can brush on a finish that looks as though it has been sprayed.

Understanding varnish

A properly applied varnish finish is glass smooth, hard and resistant to most household chemicals, foods and drinks. It also has a warm, amber glow. That makes it best suited for darker woods, unless you want to add warmth to a light wood, such as maple or ash. Regardless of the choice of wood, a well-polished varnish surface will turn heads.

Varnish must be rubbed out—About the only downside to using varnish is that you



have to rub out and polish the finish if you want a blemish-free surface. Varnish is oil based, so it takes far longer to dry than lacquer or shellac. Lacquer thinner and denatured alcohol evaporate in minutes, leaving a hard, dry finish behind. Varnish can stay tacky for hours, vulnerable to anything in the air, whether that's dust or a wandering fly. So it's important to apply varnish in as clean an atmosphere as possible.

Depending on the style and function of the piece of furniture I'm finishing, as well as the client's tastes, I may polish it only to



Always use a good brush. Look for a thick, firm brush with fine bristles, like this badger brush.

a satiny gloss, or I may take it all the way to a high gloss. Either way, though, it's not nearly as time-consuming as a lot of woodworkers think it is. Even a very large dining table won't take more than an afternoon to rub out and polish.

You must sand between coats—The other major difference between varnish and lacquer is that you cannot reactivate dried varnish with a fresh coat or with a solvent. With lacquer, every time you apply a new coat of lacquer, you effectively melt it into previous coats, creating what amounts to a single, thick coat. With varnish, you're building up a finish one layer at a time. Each new coat should bond mechanically to the one below it by gripping the scratches in the surface. For this reason, it's absolutely essential to sand between coats until there are no shiny, low spots.

One final detail about the varnish itself. Always use a high-quality product. It will brush on and flow out much better than cheaper stuff. I've settled on Behlen's Rockhard Tabletop varnish (distributed through Garrett Wade; 800-221-2942 and Woodworker's Supply; 800-645-9292). It's the best varnish I've found, and it dries the hardest, so it rubs out better than any other.

A good brush is the key

The single most important thing you can do to achieve a great varnish finish is to start with a good brush. They aren't cheap—expect to spend between \$30 and \$60 for a 3-in. brush. My first varnish brush was a badger brush from Behlen's (see the photo above), which I still use. It's a good value at \$30 or so. But I discovered another

brush last year that I like even better. It's made in Germany from the inner ear hair of oxen and is imported by Kremer Pigments (228 Elizabeth St., New York, NY. 10012; 212-219-2394). The brush, listed simply as the Pi72, costs nearly \$60. But it has very fine bristles, which leave virtually no brush marks in the finish surface.

Whichever brush you decide to use should be thick, firm and made with fine, natural bristles. This will allow the brush to hold a good amount of varnish and distribute it evenly on the surface. A thin, skimpy brush won't hold enough varnish. A limp brush won't move the varnish around, and coarse bristles can leave marks in the finish. If you're going to use varnish, do yourself a favor and buy a good brush.

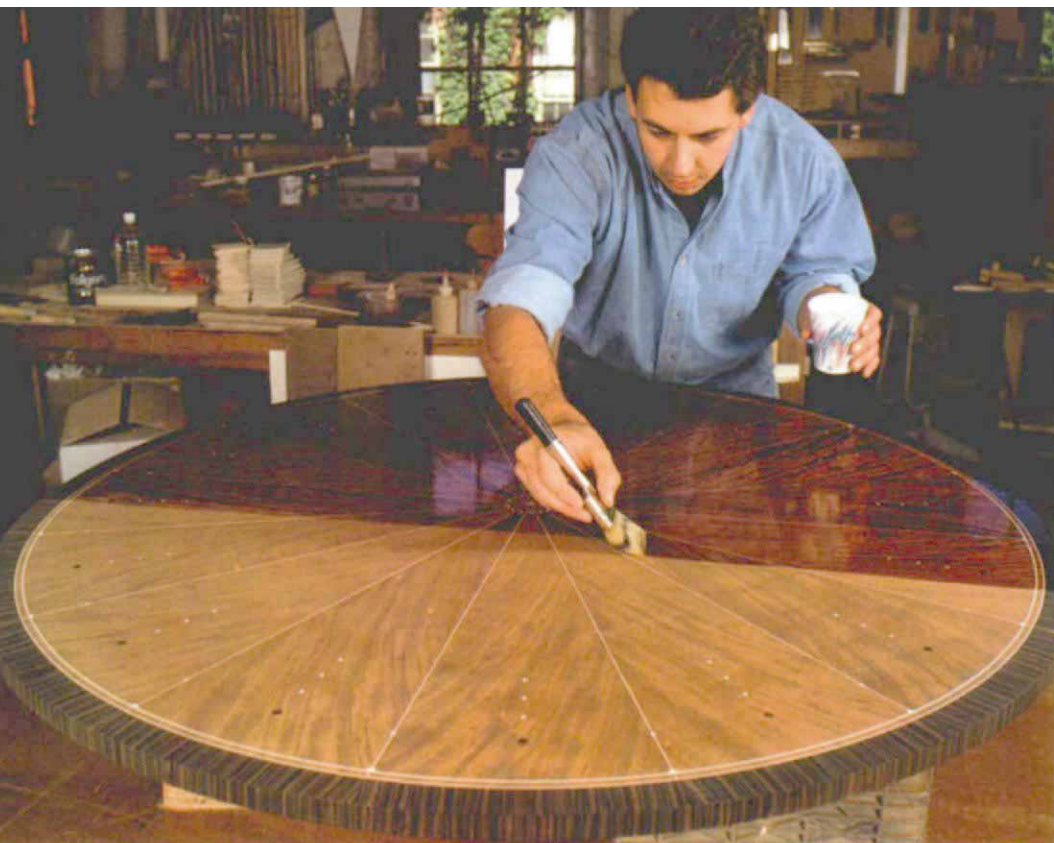
Brushing it on

The best place to varnish a piece of furniture is in a small, dust-free room with the windows closed. Few of us have that luxury, though. To reduce the number of little dust specks settling on the wet varnish, I often spray a mist of water in the air, on the ceiling and on the floor just before getting started. Try not to get any water on the piece you're about to finish. Don't get too worked up about dust, though, because any small bumps will be sanded off after each coat has dried.

I cut the first coat of varnish 50% with thinner and add a few drops of Behlen's Fish Eye Flo-Out. This is essentially just silicone, but it enhances the flow of the varnish, eliminates the likelihood of fisheyes and improves the scratch resistance and glossiness of the finish.

Brush technique is important with varnish. The object is to apply a thin, even coat. If you put on too much varnish, it will skin over and the varnish under the skin will never dry. If you use too little varnish, you'll have a hard time moving it around, and it will not flow out. With a little practice, though, the whole process will become second nature.

I find it helpful to let the brush soak in the varnish for a minute or two, so it can absorb some of the finish. Then I apply the first coat, brushing all the way across the table in long, smooth strokes (see the photo at left on p. 54). After covering the table with varnish, I quickly brush over the varnish I've just applied, but at 90° to the original direction and with a much lighter touch (see the top right photo on p. 54). Each coat is applied in the same way. On a piece of furniture with a predominant grain direc-



Brush on the varnish in long, smooth strokes (left). On a surface with a single or a predominant grain direction (unlike this sunburst veneer pattern), start by applying the finish across the grain. The first coat of varnish should be a 50/50 solution of varnish and solvent.



Brush out the varnish at 90° to the direction you laid it on (above), usually with the grain. Use a light touch. Just skim across the surface without exerting any downward pressure.

tion, I apply the varnish first across the grain and then brush it with the grain. You have to move quickly because even though the varnish will stay tacky for hours, it will start to set up after just a few minutes. You'll probably see brush marks, or striations, in the surface at first, but after 15 minutes or so, they'll level out.

I let this first coat dry for at least 24 hours and then sand it out with a random-orbit sander and a 220-grit disc. This gives the surface some tooth for the next coat to bind to. After sanding, I wipe down the surface with a tack cloth before applying the next coat.

I brush on the second coat, cut with 25% thinner and then wait another 24 hours for the coat to dry before sanding it. For a tabletop like this one, I'll apply four or five coats, allowing 24 hours between each coat and 72 hours after the last coat before starting to rub out the finish. The third and subsequent coats are full-strength varnish. Four coats are usually enough, but I've applied as many as eight. If you want the surface to be completely smooth and non-porous, keep applying coats until there are no pores showing after you've sanded with the 220-grit paper. Then just one final coat should do it.

Rub out and polish the finish

When you're happy with the last coat and have given it at least 72 hours to dry (a week

would be better), it's time to rub out the finish. For a satin finish, I just sand with 600-grit paper and polish with 0000 steel wool lubricated with Behlen's Wool-Lube. Then I rub down the surface with a clean cloth, and I'm done.

For a high-gloss finish, I used to wet-sand from 600-grit to 1,000-, 1,200- and, finally, 1,500-grit paper. Now I start and end my sanding with 1,200-grit paper (available at most auto-body supply shops). The advantage of working your way through the grits is that the rubbing out takes less time and the result is likely to be slightly flatter because you're starting with a more aggressive abrasive. The reason I stopped doing it is that I always found myself trying to eliminate a scratch or two from one of the coarser grits that only became apparent after I'd gotten to the 1,500-grit I'd have to go through the whole routine again, losing any time I had saved.

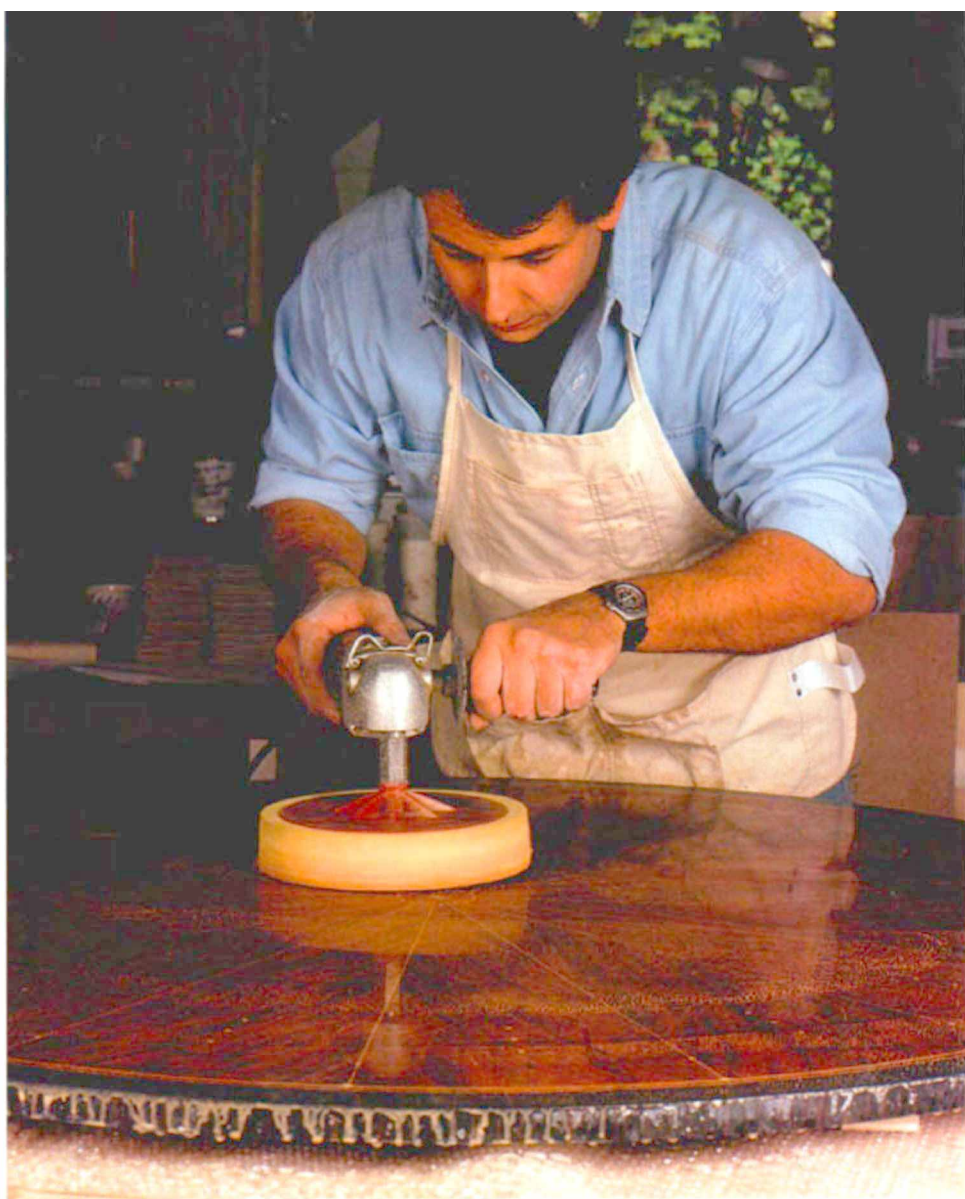
To take down all the nubs or bumps in the surface of the finish caused by dust or other debris, I wrap the sandpaper around a wooden block (see the center photo at right). I've used naphtha, mineral spirits and water as wetting agents. For this table, I used water with a little Behlen's Wool-Lube in it to make things more slippery. A little rubber squeegee helps to clear away the slurry, so you can check to see if a bump is gone or if you have more sanding to do (see the photo at right). The auto-



Rub out nubs or bumps with 1,200-grit paper wrapped around a wooden block (above). Water, naphtha or mineral spirits may be used to lubricate the surface.



Use a rubber squeegee to clear slurry. The 1,200-grit paper works slowly, so keep rubbing and clearing the slurry until all the high spots are gone.



Polish the finish with a power buffer and automotive glaze. Once you've sanded out all the nubs and bumps and gotten the surface flat, 10 minutes of power buffing will take the finish to a high-gloss shine.

body supply dealer I do business with gives me these squeegees.

After I've sanded out all of the nubs and bumps, I swap the wooden block for a cork block and give the whole table an even sanding, trying to get it as flat as possible. It's important to take down any high spots after each coat. If you let these spots build up, you could sand through one coat into another. This shows up as a visible ring between the two coats, and the only way to fix it is to sand off the whole top-coat and apply it again.

Pay special attention to the edges, where the varnish can build up a little ridge. You can judge how flat the finish is by looking at the reflection of a light on the table. If it looks like it's reflecting off the surface of a wind-swept pond, then you have some more sanding to do. If it's relatively undis-

torted, you're in good shape.

To complete the gloss finish, I apply Meguiar's Mirror Glaze #1 (an automotive rubbing compound), buff it out and wipe it off. (For the closest dealer, call Meguiar's at 800-854-8073.) It's important to get the surface completely clean because any residue from the #1 compound will scratch the surface when you go to the next finer compound. I follow the Meguiar's #1 with the #3 compound, using a different buffing wheel—again, so the residue from the coarser compound doesn't undo what I'm trying to accomplish (see the photo above). After buffing with the #3 compound, I wipe off the table with a clean rag. The surface will shine like a mirror. □

Frank Pollaro designs and builds custom furniture in East Orange N.J.

For porous woods, fill the grain

On very open-grained woods, such as burls, I collect all of the sawdust from my final dry-sanding (220-grit) in a jar. I mix this sawdust with full-strength varnish (see the top two photos below). I hone a square edge on a 2-in. putty knife and use it to apply this paste to the raw wood in place of the 50% dilution I normally use for the first coat.

I lay this paste down in one direction and spread it perpendicularly. I fill the voids, imperfections and pores (see the bottom photo), being careful not to scratch the surface. After 24 hours, I sand with 220-grit to reveal a glass-smooth surface. Two more full-strength coats of varnish and I'm ready to rub out and polish the finish —*F.P.*



Mix full-strength varnish and 220-grit sanding dust until it has the consistency of molasses.



Work mixture into the grain. Apply it in one direction, and then work it into pores crosswise. Try to create a smooth surface.