

The Journey from *Penturning to Penmaking*

by Kurt Hertzog

Questions from the Mailbag

It's been a year and a half since the last question-and-answer column, so we are about due again. Here are some of the more commonly asked questions that I've recently received. I **DO** answer e-mail questions directly when I receive them, so feel free to send your questions to me. I'll do my best to respond quickly, and I may even share your question and my response with the readers in a future column.

PHOTO UNDER POLYESTER RESIN

I just read your article in Woodturning Design about polyester resin (PR). It was a great article and very informative because I had some questions about PR that you answered. I am going to make some pens with pictures of my grandchildren cast in the resin. My question is how is that done?

Embedding a photo in polyester resin uses the same technique as putting the snakeskin under the resin. In a nutshell, you take the photo, bond it to the tube, and then cast resin around it (see **Fig. 1**). Once cast, the turning is the same as any other PR project.

However, there are some issues that you'll need to deal with. First, the photo needs to be resistant to the PR chemicals. Some are and some aren't, so test a photo printed on the same paper with some PR to ensure it won't bleed through the colors or edging. The photo is bonded to the tube with an adhesive. Some turners use an artist's spray adhesive and others use a

cianoacrylate glue (CA or superglue). You may wish to color the tube beforehand to make sure it doesn't show through the resin in the areas where there may be no picture coverage—A-West Blacken It (a model train colorant used for aging) works nicely. When wrapping and bonding to the tube, the edging or overlap of the photo is usually the stumbling block. Again, practice before you commit that special photo, using the same materials you'll use in the finished project.

A technique that I think will help you is to coat the photo to protect it from the resin. Prep the tube, bond the photo to the tube, and then coat it with multiple light spray coats of lacquer. A "rattle can" lacquer will work nicely. Once the lacquer is dry, it seals the photo from the PR. The usual failure is the PR bleeding under or into the photo, changing the colors or getting the edges to release from the tube and the adhesive. The edges roll up a bit and the photo looks bad.

The last hurdle is to protect the inside of the tube from filling with resin. If you plug the ends and put it in the resin mold, it floats. If you fill the tube with BBs before capping the ends, it sinks and the bottom of the tube doesn't cover properly with a thickness of resin all around. Two solutions work: First, do multiple casts. That is, lay the weighted tube on the bottom of the mold cast, producing a flat surface on the bottom. Once cured, flip it over in a new mold and cast again, creating the resin thickness on the top. The ends are sealed with corks using weights, such as BBs, to keep it from floating. The second solution is to use a set of standoffs so that the weighted tube doesn't lie on the bottom of the mold. You can push pins into the ends of the corks and then into pieces of wood to have it stand up off the bottom so that the resin will flow all around the tube. After casting, carefully bandsaw off the excess materials, PR, and corks up close to the tube. Drill out carefully, if needed, to further clean up, allowing for the bushings and turning mandrel.

A light touch and sharp tools are the keys to turning anything bonded to the tube under resin. The entire blank can be ruined with too much force on the PR while cutting (see **Fig. 2**). Remember: The only thing keeping it from breaking loose and spinning around the tube is the glue bond and the strength of the photo paper. You can easily ruin it if you get heavy-handed. Even with the scuffing of the tube (in my opinion, a must with all the brass tubes), the bond is tenuous, so use light cuts and sharp tools—



Fig. 1

Pictures, like snakeskin, are bonded to the brass tube and then the polyester resin is cast around it.



Fig. 2

A light touch and sharp tools are absolutely key to being successful with any materials bonded to the tube under polyester resin.

good advice for most turning projects.

Sounds like more work than it really is. The key is testing up front to be sure that all your work isn't ruined by the PR chemicals curling or discoloring the image. If that happens, try different printing paper (if you are doing your own printing). Try a different photo processor if you get your pictures done elsewhere. The other fix, if you have problems, is to try a different protective media before casting. Spray lacquer, artist fixative, painted-on epoxy, or other protective coating to seal the image (especially where it meets the edge at the "corked" ends) is paramount.

CRACKING SNAKEWOOD

My snakewood pens develop hairline cracks once they have been in use for about a year. How do I remedy the problem, or alternatively, is it just a case of avoid using snakewood for pens?

I have made snakewood pens that were perfect for nearly ten years before they developed cracks. After seeing that happen, I never could be sure that any snakewood pen would be flawless forever. When I do get cracks in snake-wood, I use a CA finish to not only fill the crack, but to rejuvenate the finish. Of course, I realize the goal is to prevent the cracks, not repair them.

My belief is that any heat-induced stress will finally relieve itself and show through the surface. Minimal heat buildup at every step, especially sanding, is crucial. The other issue is that snakewood is very brittle. Any change in the wood with humidity and temperature without any compliance in the bond to the tube will stress the wood and cause cracks.

Here are a few suggestions in no particular order:

1. Slow, slow, cool drilling.
2. Slow, slow, cool sanding.
3. Compliant glue bond (polyurethane glue, such as Gorilla glue).
4. Slightly oversized drilling, meaning a couple of thou-sandths. That will allow the compliance of the glue to work

better, rather than the wood relieving and the brass never giving.

A suggestion that I've heard of, but never tried, is humidifying the blanks. Here is how I've been told to do it: Boil the blank (prior to everything, but the blank should be cut to drilling size). Let it boil in the water for some time. I'm not sure on the timing, but the simmering boil should be for as long as you have patience. Remove the blank from the water and place it in a plastic ziplock-type bag. When closing the bag, leave it a little bit open. The goal is to let the blank dry slowly, such as the way a rough-turned bowl is allowed to dry in a slow, controlled manner. After the blank dries (somewhat), process it as you normally would—slow drilling, compliant glue, room for some wood movement, slow sanding, etc.

Unfortunately, I have had mine crack many years down the line as you have. I'm not sure how you would know if following this process has helped or not. If something never cracks, or at least within your time window, was it the boiling humidification process or just plain luck?

I use snakewood often for finials on my pierced egg ornaments. I have never had a problem, even in the areas where the finial is turned to a 0.040" or so; it stays strong and functional. Of course, who knows what will happen in ten years?

LASER POINTER/PEN KITS

Would you know if there is such a thing as a pen kit that doubles as a laser pointer? And if so, where can I get one?

I have not seen a combo of the two styles anywhere in my travels. Years back, there were laser-only kits offered by some of the retailers, but it was the early days of laser pointers and the pricing was pretty steep. Since then, those kits have disappeared as the very inexpensive laser pointers flooded the market. It would seem as if an inexpensive laser pointer (available from stationery stores) could be gutted for parts and incorporated into a pen or at least a wooden housing. It might just be a fun project.

SANDING DISCOLORATION OF PEN BLANKS

When I am done turning and start the sanding/finishing process, about half the time, I end up with dirty-looking gray streaks at the ends of the tubes/blanks. I realize this is from sanding and it is coming from the bushings/guides. Is there a way to stop this?

Sanding debris from the bushings is often a problem with lighter-colored or open-grain woods. The sanding process picks up the metal particles and deposits them in the pores of the wood with devastating results. There is no magical answer except not to create the metal debris. There are two solutions that I can suggest: First, don't use metal bushings. I have made bushings out of a variety of materials ranging from wood to the various plastics (including Corian). They won't create metal debris to be left behind and cause problems. Be aware that if you use dark-colored woods or plastic, you may have the same issues with colored debris causing discoloration in the pores of the lighter-colored blank, so pay attention to the colors.

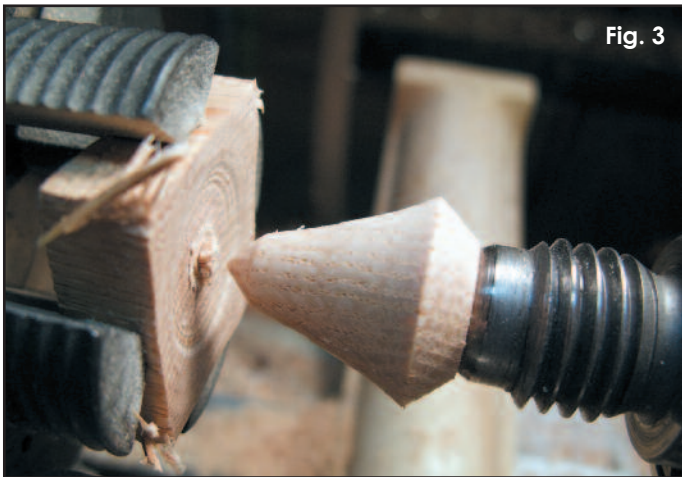


Fig. 3

It is easy to make tapered plugs for the headstock and tail center that will center any diameter tube for sanding or finishing.



Fig. 4

The wooden tapered plugs work nicely to center the work of any diameter tube.

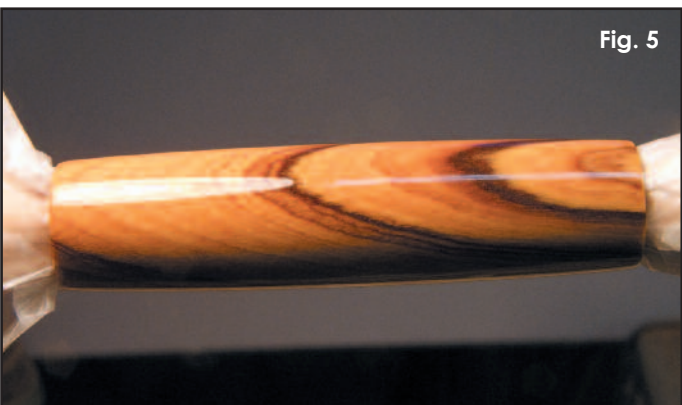


Fig. 5

I use these wooden plugs covered with a small piece of waxed paper to allow for "no risk" CA finishing.

Second, put the blank being sanded between appropriately colored blocks of wood. I make mandrels from wood, as well as plugs that will replace the center point on the tail center (see Fig. 3). These are very useful for sanding and especially for CA finishing. By having a tapered cone that registers on the inside diameter of the tube, you are unlikely to carry discoloring materials to the sanding area or glue everything together (see Figs. 4 and 5). Obviously, without the bushing as a sizing aid, you'll have to rely on other methods to determine the proper amount of dimensional change, but I recommend that bushings never be used for sizing anyway.

SEALING THE ENDS OF FILLERS UNDER PR

When making a pen from a blank using grains of rice, some of the seeds will be exposed as you turn the blank. How are they protected? I would like to try apple and grape seeds.

The rice (and other materials that will be cut into) certainly may need to have something over the surface to protect the exposed areas. Even though the rice is uncooked and very tough, I use a CA or lacquer finish over the top to completely seal the surface if the rice will see rough duty. However, I've found that even the ones that haven't been surface coated hold up pretty well. It is your choice—you can have a smooth, sealed finish or a more tactile surface finish that relies on the characteristics of the embedded filler (see Fig. 6).

ACCENT MATERIAL SOURCES

I really enjoyed the column on Ditching the Centerband (Woodturning Design #21). I like the idea of the accent piece in the middle. Would you tell me where I might be able to get the different-colored plastic material that you use?

You can find an assortment of the various-colored accent materials through almost any luthier supply company. They use pick guard and purfling in a wild assortment of colors and patterns as protection and adornment for guitars (see Fig. 7). A few popular mail-order suppliers that I am aware of (and have done business with) are LMI (www.lmii.com) and Stew-Mac (www.stewmac.com). Both are good to deal with and have a pretty broad array from which to choose. There are others as well, so do a web search to find more potential vendors.

CARBIDE CUTTERS

I've tried your idea regarding carbide inserts. I've found positive, negative, and neutral rake inserts. Which do you recommend for woodturning?

The selection of carbide inserts really depends on the end use. Years ago, I made and used the carbide tools as scrapers for stone and other abusive materials to be inlaid into the wood. In that mode, almost any cutter will work, since my angle was down and I was using a scraping action with little regard to surface finish on the stone inlay. I just used standard machine tool industry cutters in a scraping mode, knowing that sanding would take care of things.

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Fig. 6

Fillers used under polyester resin may need to be end-sealed where the material breaks out during cutting. CA or lacquer works nicely if you feel the need.



Fig. 7

Luthier inlay and pick guard materials work very nicely as accents for pen trim and are readily available through the web (if not locally).

Now, with many carbide cutter tools being used for cutting the wood itself, cutter selection is much more important. I use many versions of carbide tools, including the Hunter, the Easy Wood Tools, and the Nano tools. They are not the traditional machinist's carbide cutter types adapted to woodturning, but rather the cutters are specifically designed and manufactured for cutting wood. They are made from different carbides and designed to cut (not scrape), and then shed the cut materials.

As well as teaching toolmaking, I make many of my own tools and I use the same cutter that is used in the mid-size Easy Wood tools. It is a versatile cutter with good results in green and dry wood. I can't quote the cutter design specifics, since I don't know them—much of that is proprietary information for each of the various houses anyway. I just buy the cutters and use them.

In short, if you are going to be scraping, just about any metalworking carbide cutter you can order (from Enco, MSC, McMaster Carr, or others) and get mounted will do. For cutting in green wood, I find the *Easy Wood Tools* round cutter very favorable. For cutting dry wood, I use that same EWT cutter, the *Hunter* cutter, or the *Oneway* termite tool sharpened and properly presented.