Aniline Dyes

Coloring wood with modern chemicals

by Michael Dresdner

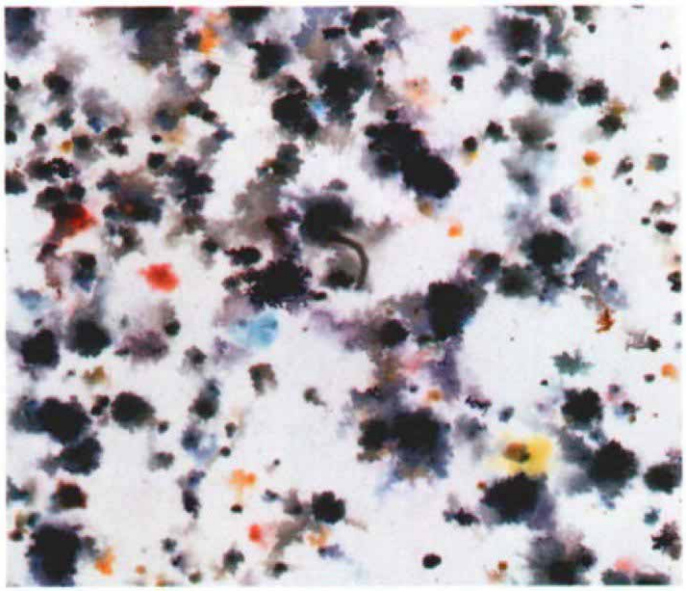
Although natural dyes can be very appealing, the vast majority of contemporary finishers prefer to use modern dyes and stains. These materials are generally much more dependable than the natural dyes. In addition, the chemical mordants and organic materials needed to make natural dyes, which produce color by reacting with the wood itself, can be messy, unpredictable, dangerous and hard to obtain.

Aniline dyes, or dye stains, which are very similar to many modern fabric dyes, are usually sold in powdered form. Formulated for one of three common solvents, they will dissolve in either water, alcohol or oil. The dye works by saturating the wood with color as the solvent soaks in. Pigmented stains, which are basically pigments or tiny opaque particles of color that are suspended in a medium, color wood by depositing the particles in the pores and crannies of the wood's surface. Unlike the transparent dyes, which will remain in solution indefinitely, the pigment in stain will settle to the bottom of the container over time.

When any wood is stained or dyed, the resultant color is a combination of the original wood color plus the dye. Hence, if a blue stain is put on a yellowish wood, the end result is not the original blue color of the dye but rather a greenish hue. Most woods have some color to them, and most ebony dyes are actually dark blue or green, although better-quality black anilines have orange added to make the dye "blacker." As a result, simply staining a piece of maple with black dye will cause the wood to appear blue-gray under a finish; on oak it will come out greenish-gray. To get the true black referred to as ebonizing, it is easiest to use several layers of dye or stain, a process that also gives you more control of the color.

Because water penetrates wood so well, water-soluble anilines are the best choice for the first coloring operation. Sponge the wood with water to raise the grain; after it is dry, sand lightly with 220-grit paper to defur it. This will prevent the water in the dye from significantly raising the grain again when the color material is actually applied. Dissolve the aniline in moderately hot water and soak the wood with a rag or sponge. The amount of dye dissolved in the water and not the amount of solution applied will control the intensity of the color. Try to get the whole piece or section wet at one time, and then wipe off any excess liquid. If it is not dark enough, add more dye to the water and restain the piece after it dries, but remember, there is a limit to how much stain a piece of wood will take. After a certain point, excess stain will merely accumulate on the surface and form a layer of colored dust when it dries.

Black aniline dye is not actually black, but rather a mixture of oranges, blues and other colors, as shown below when dye powder is scattered on damp paper.



Nongrain-raising (NGR) stains (water-type anilines predissolved in an anhydrous solution) will also work, but because they are premixed, you have less control of the color intensity. Both alcohol- and oil-soluble anilines, which actually work with naptha and lacquer thinner as well as oil, are generally less lightfast, and depending on the solvent, may flash off faster than dyes mixed with water, making them harder to control. All types of dyes vary greatly in their lightfastness, but nonfading anilines are now available in a variety of colors and solvencies.

On very porous woods, such as oak and mahogany, the pores will not absorb water-soluble aniline very well, so the pores may remain lighter than the surrounding wood. If the pores are to be filled with semipaste filler before the final finish coats are applied, this will not be a problem: Simply use black filler; otherwise, you might want to color the pores by wiping on a black pigment stain that is compatible with whatever finish is to follow.

After the first coat of finish has been applied, if the surface is still not dark enough for your liking, you can shade it up by adding an aniline dye to the next coat of finish. There are transparent dyes available that can be added to virtually any finish—oil, lacquer, shellac, varnish, water-base lacquer and even catalyzed finishes. Proceed cautiously, though, as too much dye added at this stage will make the finish look painted.

Because ebony is rarely all black, you might want to ebonize to a different color by using a combination of stains. This layered method will allow you to achieve any look you desire. □

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Sources of Supply

Highland Hardware, 1045 N. Highland Ave., Dept. F, Atlanta, GA 30306; (800) 241-6748 or (404) 872-4466 in Georgia.

The Woodworkers' Store, 21801 Industrial Blvd., Dept. 1212, Rogers, MN 55374-9514; (612) 428-2199.

Woodcraft Supply Corp., 41 Atlantic Ave., Box 4000, Dept. FW39, Woburn, MA 01888; (800) 225-1153 or (617) 935-5860 in Massachusetts.

Wood Finishing Supply Co., 100 Throop St., Palmyra, N.Y. 14522; (315) 597-3743.