

Airbrushing and Dying

Bob Stauch, NMWT member

Presentation at the June 1, 2013 NMWT Meeting -- (Review by John Ellis)

In his thorough presentation, Bob didn't do any actual turning, covering instead the basic concepts of both dying and air-brush coloring of finished turnings. Bob has done this work for about 10 years, now mainly in his shop in Jemez Springs. Bob became aware of aniline dying from his wife's work with fibers and weaving. In general, dying can permit some or all wood grain to show and the materials available allow limitless "playing" with colors.

Types of aniline dyes: There are two general types of aniline dyes, alcohol based and water based. Each has advantages and disadvantages. Alcohol based dyes do not raise the grain on the finished turning and can be blended on the wood with a "spritz" of alcohol. Its principal drawback, however, is that it is not as light-fast as water based dying. For this reason, Bob uses water based dyes almost exclusively. He prefers Procion MX dyes, which are available on the internet from Dharma Trading Company. The specific reference for the 126 colors available, sizes, cost, and other information can be found at <http://www.dharmatrading.com/html/eng/3796-AA.shtml?lnav=dyes.html>. Procion MX by Jacquard is considered the best and can be found at: <http://www.jacquardproducts.com/procion-mx.html>. Procion MX dyes can also be obtained locally at Village Wools, 5916 Anaheim Ave., NE in Albuquerque, about a mile south of Woodworkers Supply off San Pedro.

Surface preparation: Bob sands his completed turnings to 400 grit, using moisture to raise the grain. He again sands with 400 grit and on to 600 grit. Beyond 600 grit, sanding tends to clog the grain and can resist the dye. (As with all wood sanding, start with the coarsest grain needed to remove tool marks or major flaws and progress step by step to 400 grain.) He does not use a sealer to inhibit penetration, but will at times bleach some woods to achieve a truer final color. Bob generally works off the lathe, but others may prefer to work with the piece still mounted.

Mixing the dyes: Bob demonstrated two major way to apply dyes, wipe-on and airbrushing. He made up small samples, as mixed dyes can begin to deteriorate in as soon as 72 hours. Although hot (not boiling) water can be used to accelerate the process, Procion MX will dissolve in room temperature water. He started with a small amount of water to dissolve the dye powder and form a paste, then added the additional water. He uses a small percentage of alcohol (up to 25%) in the water to increase penetration. To preserve mixed dyes (and prevent cross-contamination) he recommends pouring a minimal amount of the dyes to be used into small plastic cups, keeping the remainder of mixed dyes in covered containers.

Application – wipe-on: It is important to dampen the wood surface before applying dyes. Streaks of dye on dry wood cannot be eliminated. To dampen the wood, spray generously with water but wipe off any water on the surface. He also used pieces of clean cotton rag that also are dampened – one for each color, plus others for blending colors on the piece. Bob produced a classic "sunset" pattern on a flat piece of aspen, using only blue, red, and yellow dyes. He started with the darker colors first, moving to the lighter ones. After application of the pure colors, blending is the critical process. He used a dampened clean cloth to gradually work the "blend" and transition of colors between the primary ones. (Bob noted that on end-grain wood, one may have to work carefully to control absorption.) He lets dyed pieces dry overnight, then coats them with several coats of Deft "rattle can" lacquer as a final finish (see finishing notes below).

Air brush equipment: Noting that he's only been using the air brush application technique for about four months, his demonstration of this process represented only his learnings at this point. There are many types and sources of air brush equipment available. Bob recommends buying the best you can afford and uses an Iwata "Eclipse" air brush. One source is for this and other brands is <http://www.tcpglobal.com/airbrushdepot/ieclipse.aspx>. There are various needle sizes and they can be used for both dyes and acrylic paints. Dyes or paints may need to be thinned to work properly.

The airbrush compressor he used for the demonstration is from Harbor Freight, <http://www.harborfreight.com/1-5-hp-58-psi-compressor-and-airbrush-kit-95630.html>, and costs \$88.99 (on sale). It is a kit that includes an airbrush and hose, and has a built-in filter and pressure adjustment. It provides a sufficient volume of air at the recommended pressure of about 30 psi and is very quiet while operating. Another option is to use a standard shop compressor with a pressure regulator to reduce line pressure to 30 psi, and the compressed air must be passed through an oil/water filter.

Types of air brushes and basic use: Bob pointed out that there are two types of air brushes, single-action and double-action. Single action brushes have only on-off controls, while double action have on-off, plus variable volume controls, both operated with a single lever on the handle. (Air brushes also have several methods of holding the concentrated dye to be sprayed. Some have small closed containers that attach to the handle while others have open cups on top of the handle and hold only small amounts at a time. Bob used an open-cup design.) He recommended running plain water through the brush before using a dye to be sure it is clean and free of any prior dye contamination. When changing dye colors, discard any remaining dye in the cup and rinse with plain water. Run plain water through the brush with air to completely clean out dye in the tip. He recommends having a waste jar and plenty of paper towels or rags to use when changing dyes or cleaning the brush.

Application of air brush color: It's important to have a dry test surface to try out and practice the spray technique prior to using it on a project. The surface of the wood to be sprayed is not dampened. While spraying, don't use a continuous spray, moving back and forth, but use multiple separate light passes to build up the level of color desired. Bob uses blue painters tape to mask areas on the piece not intended to be dyed. The tape is removable painters tape available in any paint store in 1" or wider rolls, and is also available in ¼" and 1/8" rolls from some art supply sources. Other forms of masking such as liquid or dry-sheet "frisket" were briefly discussed. Sprayed surfaces can be further masked for applications of additional colors as soon as they are dry to the touch. The masking tape will not lift the sprayed color off if removed within a few hours.

As a sample, Bob sprayed a hollow form turned from Arizona cypress which had some unusual grain areas he wanted to feature. He sprayed the highlight color on the featured area first, followed by the main background color. Unlike wipe-on dyeing, blending cannot be achieved by wiping the surface between colors. Blending is done by the "mix" of colors sprayed onto specific areas, since the sprayed colors are quite transparent on the surface and will automatically mix in proportion to the amount applied of each color. Bob doesn't usually spray the inside of his finished pieces. Fine results can be achieved, although using an air brush takes practice to develop finish-quality skills.

Finishing: Bob cautioned against doing much sanding of the colored piece since the colored surface quickly comes off. The piece should be allowed to dry completely before applying final finish coatings. Bob starts with six to eight coats of Deft "rattle can" lacquer, which can be applied with only brief drying times between coats. After curing he uses 2400 grit wet sanding to be sure the surface is defect free, has no runs, etc. He then applies five to six additional coats of lacquer. The final step is to sand using the Micro-Mesh system wet starting at about 2400 and working up in steps to 8000 or even 12,000 for the highest gloss possible.

Important note about sanding lacquer finishes: After a series of coats are applied the lacquer must "cure" at least overnight – or longer – before any sanding. This includes Bob's initial 2400 wet sanding after the first set of coats, as well as the final coats sanded to a high gloss. While lacquer is completely dry to the touch in as little as 20 – 30 minutes, and can be recoated safely, it does not actually harden ("cure") sufficiently to be sanded until at least 24 hours after the final coat in a series. If sanded prior to curing, it will clog virtually any grit of sandpaper and damage the built up coats.