

Coloring Turned Wood

By Cliff Goosmann

Overview

There are many things to consider when coloring turned wood objects, from reasons for coloring wood, types of colorants and techniques for coloring.

When coloring wood we generally want the characteristics of the wood to show through, therefore enhancing them. In other cases color can be used to hide or disguise objectionable features. There are numerous techniques for coloring wood but four will be discussed through the article— highlight the grain, use layering, transition from one color to another, or randomly daub on color. These techniques can be used independently or together and differ from air brushing in that they are more hands-on, take longer, don't need an air brush and provide different results.

The approach mentioned in this article is more hands-on than air brushing. The piece is constantly being held, moved, sanded and rubbed to get the desired effect. The process should be much more appealing to a wood turner.

Unique colors can be created by mixing them before applying or they can be

combined on the surface. Coloring turned objects is not significantly different from coloring any other wood objects except that the turned objects are generally smaller, often can be worked while still on a lathe, are more artistic and do not need a durable finish like children's toys.

Cautions

Coloring wood is not particularly dangerous but the powdered pigments are very fine and easily inhaled so you should wear a dust mask when mixing powdered dyes. Follow the manufacturer's instructions when mixing and using the colorants. It's also a good idea to wear rubber gloves along with eye protection when applying the dye and stain. All chemicals are absorbed through the skin and it's difficult to keep the stain and dyes off your hands when working.

Why color wood

Over the last several decades wood turning has evolved from a purely functional craft to an art form. As turners became more and more accomplished and the products became less functional, there was an increased emphasis on surface decoration.

Along with carving and pyrography, coloring became another technique for enhancing the art. The top

seven reasons for coloring wood are:

7. Accentuates the wood.
6. Lousy wood.
5. I like color!
4. Sells better.
3. What else can you do with 20 bowls that look alike?
2. Hide your mistakes.
1. Irritate woodturning friends.

The top seven reasons for not coloring wood:

7. Hides the beauty of the wood.
6. It's a cheap cop-out.
5. You can't hide bad design or execution.
4. Takes too long, too much work.
3. When it's done poorly, it looks real bad.
2. I don't know how to do it
1. Real men don't color turned wood!

Coloring agents

There are numerous ways of coloring wood but most of them can be grouped into three categories— paint, stain and dye in decreasing order of opaqueness.

Paint contains large particles of pigment and is the most opaque. It is usually thick and provides high coverage so is useful for hiding the grain, defects and even knots. Since paint is thick, it generally coats the surface and does not soak in very much. However, it can be thinned or rubbed off after application to work much like a stain. Paint contains a binder

so once it is dry it cannot be thinned or blended but it can be sanded to remove or reduce the intensity of the color.

Stain contains small pigment particles which provide the color. It is more translucent than paint and has minimal hiding power. It soaks into the wood more than paint and may also contain some dye to provide additional coloring. It also contains a binder so once it is dry it cannot be thinned or blended. Some stains dry slower than paint so they provide a longer work time. Unlike paint or dye, applying too many layers of stain may result in a muddy appearance. Once dry, the intensity of stain can be also be reduced by sanding.

Dye contains no pigment and chemically changes the color of the wood. It soaks into the wood and is the most transparent of the three. Because dye soaks into the wood it is hard to remove and can bleed through on thin or porous woods. Dye is the most flexible to work with and can be applied in multiple layers to build intensity without hiding the grain or turning muddy. Dye is the best at bringing out the full potential of the wood. Since it does not contain any binder it can be thinned or blended even after it is dry.

Unfortunately dye is prone to fading and, therefore, should be used indoors only. Metallic dyes are reportedly less prone to fade and UV protective finishes may help reduce fading. Dye is available in liquid or powder form and may be water or alcohol based.

Leather shoe dye is alcohol based and is probably no different than other dyes except that it is already mixed and limited to shoe colors. Although it is designed for leather, it seems to work well on wood. It is a very strong dye and comes in black and about two dozen "shoe" colors. Black shoe dye can be used along with matte spray finish to give an American Indian pottery look to wood. Fiebings Leather Dye works very well and is available in 26 colors although it is sometimes hard to find locally. Other brands may work equally well.

Working with paint

Several kinds of paints can be used to color wood but my choice is artist acrylics and alkyd based paints, often called "enamel". Latex based paints are too thick and too difficult to work with to be used for coloring wood although they can be used to achieve a totally different appearance. Milk paint also provides interesting opportunities and

characteristics for covering.

Alkyd paints are petroleum based (mineral spirits) and offer some interesting opportunities. They are very durable, come in a variety of colors but are generally only available in large quantities. They can be brushed on and then wiped off, thinned and rubbed in or applied and sanded off. I have not used them primarily because they are petroleum based and slow drying. Because they are designed to be durable they can be difficult to sand.

Artist acrylic paints are available in liquid form, tubes or paste and can be thinned with water or various mediums. They dry fast and once dry will not dissolve or smear. Acrylic paints darken as they dry. I use the paint available in tubes because it is reasonably priced, thick enough to cover defects and easy to work with. The same techniques mentioned above for alkyd paints can be used with acrylics except water is the solvent. Mediums can be used to delay drying time and change the sheen. Acrylics can be used as a base coat when the wood will not absorb stain or dye. The paint should be thinned or sanded to allow the grain to show through. Acrylics can also be used for highlighting or adding decorative features by painting on with a fine brush.

Working with stain

Stain has characteristics of both paint and dye so it provides several advantages for coloring. It can be applied with a rag or brush and should be wiped off before it dries completely. The longer the stain is allowed to dry before wiping, the darker it will be. Stain is not absorbed evenly, for example, side grain absorbs less than end grain. Wiping stain off of the darker areas sooner may result in a more even color. Knots are highly resistant to stain and dye.

Once a layer is applied and allowed to dry, additional layers will not mix with the previous layers. However, unique colors can be created by applying a different color in each layer and allowing the previous colors to show through. A new color is created while still showing the individual colors of each of the layers. Layering provides depth and color variations not possible when the colors are blended.

To blend colors on the surface, a second color is added while the first is still wet and the colors mixed on the surface. Misting with a solvent will cause the colors to “bleed” and mix together.

Working with dye

Dye is available in either liquid or powder form and is

either water or alcohol based.

Powder must be mixed with the appropriate solvent before using but it can be mixed in advance. Water based dyes need to be mixed with hot water and some may need a small amount of alcohol to improve dissolving. After mixing thoroughly, the dye should be filtered to remove any undissolved particles. Some colors do not mix as well as others. Once mixed, the dyes seem to keep forever although they may need to be warmed before reuse to dissolve the colorant again. The manufacture provides guidelines for the ratio of solvent to powder although the dyes can be diluted before using and darkened by applying multiple coats. Unlike acrylic paints, dyes dry lighter than they appear when wet.

Dye contains no binder therefore it does not dry permanently; following applications will dissolve any existing layers. Dabbing, not rubbing or brushing, is the best way to apply multiple colors. You can use a brush, paper towel, rag, cotton swab or whatever seems to work for the particular application. If you apply successive layers by brushing or rubbing the colors will begin to mix. In some cases the dye can be dissolved by a different solvent, for example water

based dye could be dissolved by alcohol. The reverse is also true.

Like stain, knots resist dye and dye is not absorbed evenly. However, dye can easily be darkened by adding successive coats. The difference in absorption can be used to provide highlights. You can start with light or dark color dye depending on the desired effect. Applying a light color first makes it easier to build up color variations. Applying a dark color first highlights the grain but it must be sanded off to some degree to allow additional colors to be added. These techniques will be discussed in the second part of this article, next month

Alcohol based dye dries fast, is easy to sand between coats and can be flamed to dry even quicker. Since it is absorbed quickly, it doesn't raise the grain nor run as much as water based dye. It can be blended by over-spraying with alcohol.

Water based dye dries slower and raises the grain. The dye is prone to run since it is not absorbed as quickly. Keeping the object moving can help control runs. Water based dyes can be blended by over-misting with water.

Useful tips

In some cases it may be

much easier to color a piece by leaving it on the lathe either in the chuck or between centers. Working on the lathe offers many advantages such as making it easier to sand and easier to manipulate. It also opens up other options such as coloring the wood and then turning away a section to get a sharp line of separation between the colored and now uncolored areas. The only difficulty I encountered was figuring out how to remove the excess wood and color the exposed areas to match the existing work.

When first starting, it makes sense to experiment using test pieces of wood. Using scraps of all varieties of wood will help develop a sense of how different woods react to color, how much color to use, how it is absorbed and how different colorants can be used together.

At some point it makes sense to work on simple turned objects to get a feel for how the colorants flow on curved surfaces and how to work with the shape. Spheres, cylinder, egg and pear shapes all make good test forms. The next step is to use a test piece of wood that is the same as the finished object being colored.

The shape of the object being colored is a major factor in

determining which techniques should be used. One of the easiest shapes to color is a tall vase with a narrow opening. Only the outside is colored and the interior can just be painted black or any dark color. Any dye that bleeds into the inside will be hidden by the paint.

Platters are another simple shape to work on since there can be several lines of delineation, some of which can be created after the color has been applied. Although platters can have multiple surfaces it is easy to isolate and color just the selected surfaces.

Bowls are relatively simple to color but you generally have to color both the inside and outside and possibly even the edge. Hollow forms with large openings that require finishing the inside can be the most difficult since the inside is visible and needs to be colored but it is not readily accessible.

There are many opinions regarding the sequence for applying colors. In general it is best to start with the lighter colors and work toward the darker colors. One exception for starting with darker colors would be when you want to highlight grain or figure. Also it is best to start with the most opaque medium and work toward the more transparent. Occasionally, wood will not

take stain or dye so thinned paint may be applied to form a base color. Opaque highlights such as lines and fine details that are painted on can be used as any layer.

Storing an object while it dries can be a challenge. Betty Scarpino showed us how to make a simple cradle by driving three nails through a board and turning it over to hold the piece on three points. If you have been coloring the piece while it is held on the lathe then just leave it there until it dries.

Working with color

It is possible to color an object using only a single color, however, it will not have the desired intensity. Multiple colors are needed to intensify the original color. Even if the overall look is a single color, adding different versions of the same color will add depth and interest.

Color theory shows us the techniques for combining colors effectively. Colors change their appearance based on their surroundings. The color wheel simplifies the process by showing the complementary, secondary and tertiary relationships. A color can be intensified by placing it next to its complement. For example, red will look much richer when placed next to green. Colors also take on a new value

when placed next to their secondary. Placing red and orange red next to each other will make both appear much brighter.

When coloring wood we can take advantage of these characteristics by creating a surface of "broken colors", that is the colors have not been blended into a single smooth color. Applying multiple layers and allowing the previous layers to show through is one approach. Another approach is to daub the colors randomly over the surface providing a palette of colors.

Mixing Colors

Different colors are created by combining two or more of them. Generally it is best to mix only two and at most three colors. More than this will generally result in a muddy brown. A color can be darkened by mixing it with its complement. Conversely, mixing a color with its secondary such as red with yellow will produce a new color orange.

Different colors can be created by mixing, blending or layering although the results will not always be as expected. For more information on combining colors see any book on paint with acrylics or those listed in the References section. Mixing is combining different colors externally, stirring until they are a consistent color and then

applying to the surface.

Blending requires a wet surface so the easiest way is to dampen the surface with the appropriate solvent and then apply the colors separately. Using a clean brush or rag work or drag the colors toward each other. If necessary, spraying lightly (misting) with the appropriate solvent will enhance blending. Blending will affect the previous layers.

Layering is a technique of applying one color over a layer of dry colors so they do not mix or blend. This can be done readily with stains or paint since they contain a binder. It is not as easy with dyes.

Sanding

All surfaces should be sanded to be free of tool marks, scratches and any imperfections that you do not want to feature. Coloring will highlight most blemishes and they cannot be removed later. Sanding to about 220 to 320 grit should be sufficient. Sanding too smooth can burnish the wood making it resist coloring.

Dyes and stains, especially if water based, will raise the grain. Generally this is not a problem since you will want to sand between successive coats. To reduce the amount of grain that is raised initially you can wet the surface first, let it dry then sand lightly and apply

the dye.

After numerous coats of color have been added the surface will begin to feel rough and not take color well. At this point it may be useful to rub the surface with 0000 steel wool or preferably "scotchbrite" pads between coats. This is especially true when applying the finish coats.

Highlighting grain and features

Highlighting grain works best with open pore woods with a dominant grain such as curly maple or open grains like ash and oak. The idea is to fill the grain with color pigment and then remove all remaining color from the surface. The plain surface can now be dyed or stained and the underlying colored grain will show through. The grain can be colored using paint or stain as described below.

Before coloring the grain be sure the surface is smooth and free of scratches and tool marks. Once the surface is ready it can be sprayed with a light coat of clear finish such as polyurethane or lacquer. A light coat of finish will cover the surface but not penetrate into the grain. This allows the colorant to penetrate into the grain but keeps it from soaking into the wood surface making it easier to sand off.

When using paint to highlight

grain, a thick paint such as artist's acrylic in a tube should be rubbed into the grain and allowed to dry. Usually a dark color such as black is used to fill the grain and give the most contrast. Light colors such as white can be used but may not be as effective. Once dry, all the paint should be sanded off the surface leaving color only in the grain.

To highlight grain using stain or dye, apply a dark stain or dye onto the entire surface and allow it to dry. Sand the surface as desired to expose areas where lighter color stains or dyes can be applied. This technique is often done using an air brush but it can also be done effectively by dabbing on successive layers of color.

Applying Color Randomly

This is an ideal technique for coloring woods that do not have a dominant or open grain. Colors are applied randomly and blended to provide a multicolored surface. One approach is to apply dark stain over the entire surface. Expose areas by rubbing with solvent or sanding selectively to make them lighter. Apply the next color on those areas that have been lightened. Continue the process of removing and then reapplying color until the desired look is achieved.

Another approach is to start by applying a series of light colors over the surface. Continue

adding darker colors as desired. If an area gets too dark, remove some color as described above and add lighter colors as needed.

When using dyes, it is best to apply by dabbing lightly. Rubbing or brushing will dissolve the previous colors and mix with the new. Note that light stain or dye can be applied over a darker color but it will not show as well.

This approach gets various colors by mixing them on the surface to get uneven coloring rather than a solid color. This can be done by working on the piece as it is held on the lathe in a chuck or between centers. This makes it easier to handle and sand. However, after coloring it must be removed from the lathe and the unfinished areas need to be colored. It may be difficult to make the support points match the rest of the surface.

Black pottery look

Cover the entire surface with black leather dye such as Fiebings. Spray with multiple coats of Krylon Matte finish until it acquires a silver appearance. (There are small particles in the matte finish that when applied in many coats will start to have a silvery look.)⁽¹⁾

Edge treatment

Depending on the type of edge left on the turned object you

may want to treat it differently. A natural edge bowl with bark looks best if the bark is not colored. However, a natural color shoe dye can be used to enhance the bark color. Natural edge vessels with no bark can accept a variety of treatments such as scorching or painting. An edge should normally not be stained or dyed since the colorant will likely bleed into the adjoining surface.

Three examples

By now you may have observed that there are no rules or easy steps to



follow. It is all a process of trial and error. Highlighting the grain can be used with any of the examples and any of the processes can be combined. The following examples describe several alternative processes. As usual, you can vary or combine processes as desired.

Random Daubing

This is probably the easiest and most fun to work with since it is very free form. It can be frustrating because there are no rules or guidelines. It also assumes there is no dominant grain worth highlighting. This process can be done with dyes or stains or a combination of both but is probably easier to use just dyes. Start by using a light color such as yellow applied in

a spotty fashion, not a smooth even coat. Randomly daub on the next color and continue with different colors. There is no need to allow every coat to dry, however, you will occasionally want to allow it dry to see how it is progressing. After it has dried you may find some areas that are too dark or need to be lighter so sand as needed. Go back over spots touching up with earlier colors as needed.

At some point the object will look very dull and unexciting. If it is too dark you may want to sand off additional areas and apply lighter colors. Unfortunately it is difficult to determine how the finished product will look until you apply a clear finish. If all has gone well, exciting things should happen.

Layering

Layering is a process of stacking multiple layers of color to achieve depth and variation. It is easiest when going from light to dark and can be very effective when used with just a single color family such as deep red to orange-red. It can be used with stains and dyes as long as the stain coats are keep thin. Layers can be applied from different coloring agents, i.e. one layer can be paint, another stain and another dye which can be very effective when done correctly.

Apply the first coat and allow it

to dry. If the coat is stain then a second coat of either stain or dye can be applied as usual. If the color was dye then stain can be applied over it with no problems once it has dried. However, if it is dye over dye, then the second coat can be applied by daubing it on quickly trying to avoid blending with the previous layer. If applied too slowly or too many times it will blend with the previous layers. There is no need to apply the coats evenly since the intent is to achieve slight variations in the overall color.

Any of the succeeding coats can be stain which should be applied and then rubbed off before it has dried. This will fix the dye layers and allow additional coats of dye to be applied without dissolving the previous layers. The colors can be accented by daubing with contrasting color. The intent is to produce a color that looks consistent but upon close examination is made up of many variations of the same color. Once again, the color may not look at all like you intended but applying a finish coat will bring out the true beauty.

Transitioning color

This approach may be the most difficult to do successfully. The grain can be highlighted using the technique described previously. Once the highlighting has dried and been sanded, coloring can begin.

The colors are applied independently and only where they meet are they blended to produce a new color. For example a blue section and yellow section can be blended where they meet to provide a smooth transition from blue to green to yellow. When used on tall objects such as vases it can be used to develop a color transition from bottom to top. When used on bowls or platters it can help highlight the grain or figure pattern.



Blending works best with dyes since the color needs to be wet to blend successfully. If the dye dries prematurely, it can be wetted with solvent to improve the blending process. Begin by wetting the entire surface. Then apply the first and lightest color using one of two techniques. It can be applied over the entire surface and sanded in the areas where it needs to be lighter. Or a second approach is to apply the light color at one just the end where it will appear and apply succeeding colors working toward the darkest at color at the other end.

Apply the second color and blend it toward the original color. Blending can be done by using a dry brush to pull one color gently toward the other.

The brush may need to be cleaned occasionally to avoid contaminating the pure colors. Sometimes it is helpful to use a rag and rub between the adjoining colors to help them blend. If the dye has dried, it can be moistened by spraying lightly with the appropriate solvent. Successive colors can be added as desired following the same techniques until the last and darkest color is applied

Finishing

The finish coat may be the most important step for bringing out the true beauty of the colors. When the colors dry they have a dull lifeless appearance. The final coat should be semi-gloss or glossy to bring out the colors and make them “pop”. In addition, the finish coats will protect the colors from abrasion and help reduce fading. Finishes with UV protection may provide additional protection from fading.

The first finish coat needs to be compatible with coloring materials used but should not use the same solvents as used in the colorants. The first coat should be sprayed on to avoid disturbing the color layers. A good lacquer based sanding sealer would make a good first coat. I have found that regular lacquer works extremely well as the sealing coat and final finish.

Conclusion

Much of this material was obtained through trial and error based on information I received from hands-on with Donald Derry and Jimmy Clewes and from watching the Chris Stott video on decorating wood. Unfortunately you really do have to experiment and practice. No one technique is best; I got the best results by combining many different ideas and techniques. Keeping notes will help, especially noting things that don't seem to work.

Materials

Acrylic paint- Liquitex Basics is good and inexpensive. Available at Michael's, Hobby Lobby, etc. 4 ounce tube.

Stain- Woodburst Intermixable Wood stain- premixed petroleum based stains. Slow drying. Available Rockler and Woodcraft. 56 ml bottle.

Dyes- Transfast Water Soluble Dyes, in powder form from Home Stead Finishing Products available at Rockler and Woodcraft. 1 ounce net wt. Bottle

Behlens alcohol based liquid dye. Available at Rockler and Woodcraft.

References

AAW Journal Mar 2007
Coloring wood

Chris Stott video

Jimmy Clewes video

Donald Derry article

Decorating Turned Wood; Liz & Michael O'Donnell

Blue and Yellow Don't Make Green; Michael Wilcox

Popular Woodworking Magazine articles on finishing by Bob Flexner

⁽¹⁾Phil Brennon, American Association of Woodturners Magazine