Turnings to Dye For

Some notes on the presentation by Justin McCarthy at the Guild monthly meeting in March 2013

TransTint dyes: These dyes are manufactured by Homestead Finishing Products, which is an American company. Their website is http://www.homesteadfinishingproducts.com/htdocs/TransTint.htm

I am not aware of any Australian company which sells these dyes, and Homestead Finishing Products only ships within the US. However, they can be purchased online from Highland Woodworks in Atlanta. The relevant page of their website is http://www.highlandwoodworking.com/transtintdyeconcentrates2oz.aspx
I have purchased products from this company on a number of occasions and they are very reliable.

A very useful Technical Data Sheet is available on the Homestead Finishing Products website on the mixing and use of these dyes. The relevant page is http://www.homesteadfinishingproducts.com/pdf/TransTintTDS%25206-2009ii.pdf. These dyes come in 19 colours. The majority are in wood tones, e.g., Brown Mahogany and Dark Vintage Maple, with the balance in more primary colours, e.g., Lemon Yellow, Bright Red and Blue, plus black.

They are very concentrated and must be diluted by adding either water or a solvent (methanol, denatured alcohol or isopropanol). I have only ever reduced the dyes with denatured alcohol. While the application of a water reduced dye will raise the grain, the company claims that an alcohol reduced dye will not. That has not been my experience, although the extent to which an alcohol reduced dye will raise the grain is very small and if the dye is applied to a surface that has been sanded to, say, 1200 grit, a light sanding at 1200 grit will usually remove any raised grain. In the Technical Data Sheet it is stated that reducing the dye with a 50/50 mix of water and alcohol is a very satisfactory solvent as it will not raise the grain as much as straight water, while it will dry more quickly - but not as quickly as where straight alcohol is the solvent.

The extent to which the dye is reduced is a matter of trial and error. The company suggests a ratio of 1oz. of dye to 1 quart of solvent as a starting point but as I was metrically reconstructed many years ago I find this less than useful. I purchased my dyes in 2 oz. plastic containers which have a pin hole in the cap for dispensing the dye. I tend to 'squirt' the dye for no more than a second into about 50ml of solvent and then apply the reduced dye to a test piece of wood, adding a little more dye if the colour looks too washed out, or adding more solvent if it is too strong. It is better to err on the side of the mixture being too lean as you can always apply a second coat of dye to the workpiece if the first coat looks too washed out.

As the dyes have a high pigment content, too strong a solution will leave a lot of pigment on the surface which must be removed. As discussed immediately below, Phil Iron's method involves 'firing' the surface to quickly remove any residual alcohol. This causes the pigment in the dye that has not been absorbed by the wood to go quite hard and will create problems when sanding using Phil's method, particularly at the higher grits.

Phil Iron's Method

Phil's website is http://www.philirons.com/.

The main factor determining the extent to which a dye will penetrate wood is the alignment of the wood fibres to the surface. There will be the greatest penetration where they are at 90 degrees to the surface, and the least penetration where they are parallel to the surface. Where dye is applied to a workpiece turned from material with the wood fibres running in the same general direction, the extent to which the dye will penetrate the wood will be relatively uniform - with the greatest penetration at the two points opposite each other where there is end grain. In crotch or burl material, on the other hand, the grain fibres do not run in a consistent fashion.

Phil's technique utilises this feature of crotch and burl material by applying a number of colours to, in his words, "enhance the grain". Further, he uses white woods such as birch, ash, maple and horse chestnut. Generally speaking, the darker the wood the less impact a dye will have. Purple applied to jarrah, for example, will at best give the jarrah a slight purple hue - it will not make it look purple.

Phil will apply two or more colours (including black), sometimes repeating a colour. The first colour is applied straight off the tool as Phil considers that sanding before the application of the first colour interferes with the penetration of the dye. Although Phil reduces his dyes with denatured alcohol, which is quick drying, he then burns off any residual alcohol on the surface with a cigarette lighter. The workpiece is then sanded at 120 grit with a rotary or power sander until much of the dye has been sanded off save for those areas of the workpiece where the grain runs at or about 90 degrees to the surface. A further colour is then applied with the surface sanded at 180 grit although this time the direction of the lathe is reversed. As the sanding is at a higher grit, less of this second colour will be removed from the overall surface. This process is repeated two or three more times - applying a colour, quickly burning off any residual alcohol, reversing the direction of the lathe, sanding at a higher grit (up to 320/400 grit). With the application of each colour, and the consequent sanding at a higher grit, more and more of the surface of the workpiece will be covered with colour. Further, as mentioned below, overlaying one colour on another will have certain effects, particularly at the transition points.

The sanding part of Phil's method is critical. It must be uniform in the sense that there are no unsightly 'bands' of colour. It must also be as vigorous, or not, as the aesthetic requirements of the workpiece at that particular stage dictate. Further, the application of dye to a workpiece which has sanding marks will only enhance those sanding marks. That is why it is desirable to use a rotary or power sander whenever possible.

Phil applies the dye with a large brush. This is slower than applying the dye with a rag but more economical. As alcohol reduced dye is quick drying, applying the dye with a brush will inevitably result in lap marks. However, given the amount of sanding in Phil's method this is unlikely to prove a problem.

An example of a colour sequence might involve the initial application of black, followed by purple, then red and finally lemon yellow. The purple will not materially affect the areas of black while overlaying the red on the purple (which is a blue purple) will make some of the

areas of overlap a red purple. Because of the blue in both the black as well as the purple, the lemon yellow will make some of the areas of overlap a dark olive green.

Phil's technique is seen to its best effect on enclosed forms. He makes no attempt to sand the inside and any roughness of the internal surface is disguised with the application of matt black acrylic paint. He then applies a finish which consists of two coats of a gloss polyurethane, rubbing out between coats.

Other ways of using TransTint dyes

Generally speaking, Phil's method will only work if the surface of the workpiece largely consists of interlocking grain. To use his method on a workpiece with consistent grain pattern is likely to result in a surface that is a muddy mess, even if the colours used are reduced to two.

Nevertheless some pleasing results can be achieved with these dyes on wood with generally consistent grain pattern.

One approach is to sand the workpiece to 1500-2000 grit before applying the desired colour. Although there will be lap marks, these can be removed by quickly applying an alcohol soaked rag to a slowly rotating workpiece (should you be tempted to speed up the lathe you will quickly discover why you shouldn't have). The workpiece should then be 'fired'. It will then be necessary to sand off any raised fibres as well as pigment on the surface. If the earlier sanding was to 2000 grit, I will try starting at 1200 grit but if there is too much pigment on the surface I will go down to 800 or possibly 400 grit.

The resulting colour can be altered if desired by applying another colour in exactly the same way.

As mentioned earlier, the main factor determining the extent to which a dye will penetrate wood is the alignment of the wood fibres to the surface. However, the less smooth the surface, the greater the penetration, and applying dye to a surface that has only been sanded to 320 or 400 grit will often result in a reasonably consistent but matt surface.

Justin McCarthy