

STAINING

There are several ways of staining timber, here are the most common methods.

WATER STAINS.

These stains are the best for some reasons, they are cheap, they cover more surface area litre for litre than any other type of stain, have good penetration, and clarity of colour.

Water-stain powders can be obtained in a great variety of colours from any of the polish manufacturers, and by varying the quantity of water used with each provides an infinite number of shades can be produced.

They can also be obtained ready-mixed, and by adding water or mixing stains together the tone can be varied.

When powder stain is mixed allow plenty of time – an hour or so – before using because some ingredients are dissolved more readily than others, and if used too soon the resulting colour may be different from that anticipated.

One disadvantage of water stains is their liability to raise the grain. To prevent this, it is policy to damp the surface with clean water after cleaning-up, allow to dry, and then glass paper down afresh. When the stain is applied after this any roughness will be reduced to a minimum.

WALNUT CRYSTALS (VANDYKE BROWN).

A stain used almost universally is that made with walnut crystals. When made into a strong solution with water, it produces a deep and rather cold brown. Incidentally, it can be made more penetrating and slightly darker by the addition of a little 880- ammonia. Used alone in water, however, its lighter shades are often useful on oak to produce pale golden tones in conjunction with garnet or button polish.

OIL STAINS.

These are oil-soluble dyes dissolved in turps, naphtha, or similar oils, and may be obtained in a great number of colours that again may be blended to produce any particular tone. Though not so

penetrating as water stains, they are useful in arriving at a colour quickly, and they do not raise the grain.

Mahogany oil stain is a rather deep red in its strong state and is made lighter with turps. Browns, both warm and cold, black, greys, and lighter green stains are useful for taking the red out of mahogany and can all be obtained from the manufacturers of polishing materials, and are moderately inexpensive.

A point to note is that when it is proposed to wax polish timber after oil staining it is essential that the latter is first fixed with a couple of rubbers of French polish.

Its purpose is not to produce a shine but merely to fix. If this is omitted it is quite possible that the waxing will remove the stain in patches, since the wax may be mixed with the same medium as the stain.

This is an important point and should be carefully noted.

SPIRIT STAINS.

These are not widely used in the trade because they need confident handling, and have a tendency to fade.

The spirit with which they are mixed dries out rapidly, and it is difficult to keep an edge alive, especially when a large surface has to be covered. One advantage is that they are not liable to raise the grain. They can be obtained in powder form ready for mixing with spirits, or directly with French polish.

They tend to dry out more rapidly than either water or oil stains. When it is suspected that a surface is greasy or when a previous finish has been cleaned of spirit stains are handy in that they take better than water stains.

ANILINE DYES.

These are obtainable in powder form in a wide variety of colours, including black, blue, Bismarck brown, Vandyke brown, green, red, maroon, and purple. They are powerful stains and require great care in their use. Some of the colours are unorthodox so far as woodwork is concerned, and should be used cautiously or startling results may be produced. Generally it is advisable to keep to the proprietary stains already listed. The black, however, is useful for ebonising. They can be obtained soluble in water, spirit, or oil, and the correct medium must be used. Vinegar must be

added to the water aniline to fix the colour. Spirit aniline dye should have a binder of French polish. Turpentine is used for the oil aniline.

CHEMICAL STAINS.

Strictly speaking these are not stains in the ordinary sense of the word. They produce their effect by chemical action, and the colour of the chemical frequently has no connection with the colour produced in the timber. They are included here because they virtually act in the same capacity as a stain.

BICHROMATE OF POTASH.

This is the most important of the chemical stains. It depends upon chemical reaction with the tannic acid in the timber. It is obtained in crystals of a reddish orange colour, and steeping the crystals in water makes a concentrated solution. The resulting solution is of the same beautiful tint.

Water can be added to the concentrated solution when lighter tones are required. Only certain timbers are affected by it, the most important being mahogany. Oak too is darkened, though the resulting shade is rather greenish and cold. Deal is not affected by it. In a strong solution it produces on mahogany a cold, deep brown though different in hue from that of walnut crystals. The colour in part depends on the original type and colour of the timber.

Thus Cuba and Spanish mahoganies would be much redder and deeper than Honduras when stained with the same strength of stain. On white oak it produces (with tannic acid) a rich brown similar to fumed oak.

Black water stain when diluted is also very useful for various greys, as well as to tone down other stains, as for example bichromate. Generally speaking, there is no stain that can be guaranteed to give a certain colour unless all the facts are known regarding the timber used.

As seen above, mahogany takes bichromate of potash differently according to its particular variety, and it will therefore be realised that pattern pieces of different timbers stained with various strengths of different stains will be of the utmost value when it is required to know the stain to be used for a job in hand.

These patterns should be labelled with details of the process. Some mahoganies are scarcely affected by it, and if mixed timbers are used in the same job the result may be patchy.

AMMONIA

This if used in liquid form will have the effect of darkening the timber, especially oak and mahogany. The effect is slight, however, and the more usual plan is to obtain the effect by fuming. It is useful for mixing with water stains in that it has the effect of driving the stain more deeply into the grain. Do not use it with the bare fingers, as it can be very caustic.

Sulphate of iron (green copperas). Used to kill the redness off mahogany when it has to be made to resemble walnut. The crystals are dissolved in water, which becomes a muddy greenish tone.

When first applied the effect is scarcely noticeable, but on drying the timber assumes a bluish grey tone. It can also be used to give oak a blue-grey tone. Try the strength on a spare piece of the same kind of timber and wait until it dries to see the effect. If too strong the colour will resemble Air Force blue.

It turns sycamore to a grey tone, thus producing "greywood" or "harewood". If filling with plaster and water has to follow, always fix first with two coats of clear French polish.

PERMANGANATE OF POTASH.

This makes a cheap stain. It is obtained in small crystal form, and is dissolved in warm water. It imparts a rich warm tone to oak, but the colour is fugitive. In a short time it fades and is not recommended for important work.

AMMONIA FUMING

This is a darkening process in which ammonia gas reacts with the tannin in the timber. It gives a beautiful tone to oak, and has the great advantage that, since no liquid is applied to the timber, the grain will not be raised.

White oak when fumed turns to a grey weathered colour, which, when rubbed with linseed oil, becomes a rich brown. Chestnut also, being rich in tannin, reacts beautifully to the process; while mahogany and walnut become somewhat browned. White oak and red oak should not be used

together in any article that is to be fumed, for the latter timber contains less tannin than the former, and the work becomes of uneven colour in consequence.

THE CHAMBER.

The process is quite simple. Any cupboard that can be made airtight can be used, or a special box can be made. For large work, a big cupboard or small room may have to be made airtight by covering cracks and holes with gummed tape. The chamber should be the smallest that will accommodate the work, because the fumes are rapidly dissipated. The work and one or two saucers containing the ammonia are placed in the fuming box, which is then closed up and allowed to remain so until the colour is dark enough.

Use 880 ammonia, in the case of large work put down three saucers well spaced from each other.

Details of a simple home-made fuming box are given [HERE](#)

A dowel of similar timber to that being fumed is made a tight fit in a hole in a side of the box. It projects inside an inch or two and makes a useful test piece, saving opening up and allowing the gas to escape.

To test, put a small amount of linseed oil on to the dowel or an inconspicuous corner of the job, when it will turn to a brown tone. Alternatively, wet your finger and touch a small portion of the work. This will reveal approximately the finished shade. If not dark enough the process must be continued, more ammonia being added, as the first becomes useless, for as the gas is liberated the liquid turns to water.

No overlapping of parts should be allowed or there will be light unstained parts. Therefore see that all surfaces are placed so that the gas can reach them. The time taken is anything from one to forty-eight hours, depending on the colour desired and the size of the fuming box.

Another point to note is that the surface must be clean and free from grease or glue, as these will prevent the gas from becoming effective, and the result will be a light patch.

USE OF ACID IN FUMING

The process may be quickened by coating the timber with tannic or pyrogallic acid in solution of 1oz. tannin powder to 1 quart of water, and 3/4oz. pyrogallic to 1 quart of water. Pyrogallic acid treatment gives a redder tone than the tannic acid, while a mixture of the two gives a slightly different shade from either. Acid-treated timber is generally of a more even colour when fumed.

Bichromate with or without a little black stain added is quite good for matching up any uneven portions, the strength of same depending on the shade required. The whole job is then papered well down. As this process penetrates well into the timber there is no need to fear light patches, but care should be taken with edges.

As mentioned in connection with water staining, the grain should always be raised with water and well sanded when dry before commencing operations at all. This, of course, is unnecessary when the work is to be fumed only, without the use of tannic or pyrogallic acid. Rubbing with a mixture of one part linseed to three parts turps is the next operation, all excess being wiped off well. The job is allowed to dry for twenty-four hours before any finish is attempted. Wax polish generally follows fuming, though there is no reason why French polish should not be used if this finish is required.

Wax stains.

When a piece of furniture is to have a waxed finish it can be darkened or toned to a different shade by the use of a wax stain. This stains and polishes in one operation. Wax stains are seldom used in the trade for direct staining from the bare timber, but are handy for toning a job which has already been stained and which is not of quite the desired tone. They are obtained ready-made and are applied freely and allowed to dry out thoroughly. It is advisable to allow at least a day for this, because no effective shine is possible until after all liquid has evaporated. Use a cloth rubber free from Huff when polishing. A dull, eggshell sheen should be produced.

Varnish stains.

These are virtually varnishes to which colouring matter has been added. They are largely opaque, so that the grain beneath is almost entirely concealed. They are therefore entirely unsuitable for figured timbers, since the beauty of the grain is lost. They can be used for cheap-grade timbers, though even here the result is inferior to that of clear varnish applied after staining. The main value of varnish stains is in covering over a poor and dilapidated finish. Take, for instance, a kitchen chair which originally had a varnished or polished finish, but which is now badly knocked about. To strip of the old finish would be a long and difficult process. By using a dark varnish stain

the old finish and all defects are entirely covered up and a gloss produced at the same time. If used on bare timber it is advisable to give a preliminary coat of glue size first. Otherwise it will sink in unevenly and produce a patchy result, especially on softwood.

Water coating.

Strictly speaking this is not stain at all, but is dealt with here because the coating is intended to answer the purpose of a cheap stain. It consists of one of the powder colours (ground in water) mixed with water, with size added as a binder. If the powder – umber, red ochre, or black, etc.– is merely mixed with water it will be left as a deposit on the surface as the water dries out and can be brushed off.

The size binds it, and it adheres to the timber as a sort of distemper, entirely opaque. All grain is thus covered up. This gives it a value for some work because defects are covered up as well. It is thus handy for backs and unimportant jobs where inferior timber may have been used. It is entirely unsuitable for work to be French or wax polished.