

take. Better place them in a *workshop, mill, or foundry*, where they can learn independent trades, which at all times will secure for them employment, and the pecuniary compensation for which will be at least as much, if not more, than the business of accounts. We earnestly advise all parents to teach their sons trades, no matter what, so that it is an industrious pursuit; and let us in the future be spared the pain of seeing so many stout, able-bodied young men out of employment, and seeking situations where the pen can only be used. There is a *dignity in labour*; an honest trade is the best legacy a parent can bestow upon his child, for it will secure his bread where all else may fail. We base our remarks upon the fact that nearly one hundred applications from young men were received by a firm in our city who recently advertised in our columns only twice for an assistant book-keeper. This fact alone, taken in connection with the well-known scarcity in labour in the mechanical branches of industry, speak volumes in condemnation of the popular error of making book-keepers of all our boys.—*Atbany (N.Y.) Journal*.

The Way Varnishes are Made.

A Mr S. A. Schmidt, in the *Scientific American*, gives the following method of making varnishes, and of bleaching shellac:—

“For one pound of good shellac take four ounces of crystallized carbonate of soda, and one gallon and a half of water; put the whole in a clean iron or copper vessel of double the capacity, and, under constant stirring, bring it to boil over a slow fire. The shellac will dissolve, and, if it is intended to make colorless French polish, the solution has to be run through a woolen cloth. For brown bookbinder's varnish, or a colorless varnish for maps, photographs, etc., the solution has to boil for about an hour longer, but only simmering, and then to cool very slowly without stirring; better let it stand over night, and let the fire go out under it. In the morning you will find a wax-like substance on the surface of the solution, and the other impurities of the shellac as a deposit on the bottom of the vessel. The solution is likewise to be run through a woolen cloth, and then to be filtered. For the filter, I take a small wooden keg, remove the top and bottom, and fasten to one side a piece of muslin; on the muslin I bring about four inches of fine, washed sand, and on the top of the sand a layer of clean straw; then I pour the solution into the filter and let it run through. Should the first portion run through not be perfectly clear, like red French wine, it has to be brought back to the filter. When nothing will run through any more, pour some clean water on the filter to wash the remaining solution out. If you intend to make a transparent brown varnish—bookbinder's varnish—this filtered solution has to be precipitated with diluted sulphuric acid (one part acid to twenty parts of water), the precipitate collected on a coarse muslin cloth, and washed out with cold clear water till it runs through without taste. Then fill a stone or wooden vessel with boiling water, and throw the precipitate in it; it will directly soften and stick together; this half mass has to be kneaded in the hands, doubled up, melted, and drawn out till it assumes a fine silky lustre, then drawn out to the desired thick-

ness in sticks, like candy, and it is then ready for solution.

To make white French polish, or transparent colorless varnish for maps, the solution has to be bleached. The bleaching fluid is made as follows, and the proportions are for one pound of shellac: Take one pound of good English chloride of lime, dissolve it in fourteen pounds of cold water, triturating the lumps well, let it subside and decant the clear fluid; add seven pounds of water to the residue, and when subsided, add the clear liquor to the other; precipitate this liquor with a solution of carbonate of soda, let the carbonate of lime settle, and decant the clear chloride of soda; wash the sediment out with water and add the clear liquid to the former, put it in a high stone jar, and give it a rotary motion with a wooden stick, pouring in at the same time very diluted sulphuric acid, till it assumes a greenish color and a smell of chlorine is perceptible. Then add of this liquid to the solution to be bleached, under constant stirring, till all the color is gone. French polish will look like milk, colorless varnish like whey, but more transparent. Then precipitate with dilute sulphuric acid, exactly as the solution for bookbinders' varnish, and treat the precipitate in the same manner, in hot water. All iron must be carefully avoided as soon as the chlorine liquor is added.

To make the different varnishes, it is only necessary to dissolve the different precipitates in alcohol. For bookbinder's varnish, take one part to two and a half parts alcohol; French polish, one to three; colorless varnish, one to two and a half, and add to the varnishes (not to the polish) one and a half drams of oil of lavender for one pint. For photographs this solution is too strong; one part of bleached shellac to six parts of alcohol will answer. For maps the solution should not be applied immediately to the paper, but the latter should first receive a coat of boiled and strained starch.

By dissolving shellac, either in a solution of borax or in one of an alkali, shellac acts as an acid—like most other resins, or like stearic or margaritic acid, contained in the fats—combining with alkali and forming a kind of soap, easily decomposed by any of the common acids. The waxy matter, not saponifiable, is by slow boiling separated, and lighter than the solution; swims on the surface, where, after cooling, it can be collected. It is harder than common wax; made into candles it burns like wax, and resembles the vegetable wax of commerce.

It is a remarkable fact that all shellac contains a small quantity of arsenic, in the form of yellow sulphuret; it is found in the residuum, after the solution has cooled and is decanted off in small golden yellow particles, and out of a solution of ten or more pounds, enough can be picked out to reduce it to a metallic arsenic.”

Ocean Postage.

The *Times* asks for a low uniform rate of ocean postage. Fine goods of any kind are carried from England to the West Indies at from £7 to £10 per ton, whereas a bale of letters of the same size would be charged £1,792 per ton. Letters to the United States pay at the rate of £3,584 per ton, whilst fine goods are carried for £3 per ton.