

not too strong, or it will render the wood nearly black.

Blue.—Take of alum 4 parts; water 85 parts. Boil.

Purple.—To produce this color, take of logwood 11 parts; alum 3 parts; water 29 parts. Boil.

Mahogany.—1. Linseed oil 2 pounds; alkanet 3 ounces. Heat them together and macerate for six hours, then add resin two ounces; beeswax 2 ounces. Boiled oil may be advantageously used instead of the linseed oil.

2. Brazil wood (ground): water sufficient; add a little alum and potash. Boil.

3. Logwood 1 part; water 8 parts. Make a decoction and apply it to the wood; when dry, give it two or three coats of the following varnish: dragon's blood 1 part; spirits of wine 20 parts. Mix.

To take Stains out of Mahogany.—Spirits of salts 6 parts; salt of lemons 1 part. Mix, then drop a little on the stains, and rub them until they disappear.

To Stain Musical Instruments.—Crimson: Boil one pound of ground Brazil wood in three quarts of water, for an hour; strain it, and add half an ounce of cochineal; boil it again for half an hour gently, and it will be fit for use.

Purple.—Boil a pound of chip logwood in three quarts of water, for an hour; then add four ounces of alum.

A few Hints on Dyeing.

To those who wish to have certain fabrics dyed, the following information will be found useful, as regards the colours they will take. Thus if the material be black it can only be dyed black, brown d. green, d. crimson, d. claret, and d. olive. (d stands for dark in all cases.) Brown can only be dyed black, d. brown, d. claret. Dark green: black, brown, d. green, d. claret, d. olive. Light green: d. green, black, d. brown, d. crimson, d. claret, d. olive. Dark crimson: black, brown, d. crimson, d. claret. Light crimson will take the same as dark crimson. Claret: black, brown, d. crimson, d. claret. Fawn will take d. crimson, d. green, black, brown, d. claret. Puce: black, brown d. olive, d. crimson, d. claret. Dark blue: black, brown, d. crimson, d. green, d. claret, d. olive, d. blue. Pale blue: d. crimson, d. green, black, brown, claret, puce, d. blue, d. olive, lavender, orange, yellow. Olive will dye brown, black, d. green, d. crimson, d. claret. Lavender: black, brown, d. crimson, claret, lavender, olive. Pink: d. crimson, d. green, black, brown (as all tints will take a black and brown, these colours will not be repeated), pink, olive, d. blue, d. puce, d. fawn, Rose, same as pink, but also orange, scarlet and giraffe. Straw, primrose and yellow will dye almost any colour required; as also will peach, and giraffe. Grey will only dye, beside brown and black, d. green, d. claret, d. crimson, d. fawn, d. blue. White silk, cotton and woolen goods can be dyed any colour. As cotton silk and wool all take dye differently, it is almost impossible to re-dye a fabric of mixed stuff any colour except the dark ones named. It will be observed by the above list that pale blue will re-dye better than any other colour.—*Septimus Piesse, F. C. S.*

Application of Aluminum.

In the hands of Messrs. Bell, of Newcastle, the results obtained by Wöhler, Deville, and others, have been brought into a practical shape, and the manufacture of the metal may now be said to be well started.

Unquestionably there are difficulties still to be overcome, but with the start that has been made they are in a fair way of being met. The softness, the dull appearance, and the fragile nature of the metal are objections to its use when compared either with silver or with plated goods. But there are many applications in which these characters would be of far less importance than its cardinal merit of lightness, and, as compared with inexpensive metals, its lesser liability to discolour, tarnish, or oxidise by exposure to the atmosphere.

The applications that have hitherto been made of aluminum have been most in the way of ornamental purposes; but, nevertheless, its price has been brought down to about sixty shillings the pound, whereas three or four years ago it cost as much an ounce.

As regards aluminum itself, one of its most likely applications is probably as a material for statuettes and small works of art of this description, especially if a means could be found of giving to it a richer colour and appearance, either by a kind of bronzing or by the addition of some alloy. It requires a much less intense heat than silver for melting, and when melted, it solidifies much more slowly. Consequently, it is particularly well adapted for castings that require to be executed with great delicacy.

The sonorous character of aluminum is very peculiar, far exceeding that of silver as regards clearness, and this, together with its lightness, may become serviceable in the construction of musical instruments.

The alloys of aluminum have been less minutely studied than they deserve to be, but the alloy of copper with 10 per cent. of aluminum is one which by its beautiful appearance and other characters will no doubt be of importance. This aluminum bronze has, like aluminum itself, been chiefly applied for ornamental purposes, and its beautiful yellow colour and lustre render it well adapted for such purposes, not because it is like gold, without being it, but because it is nearly as beautiful in itself, and combines with this character an intrinsic value so much less than that of gold, that it may be applied to purposes for which gold could not possibly be used at all. It is very strong, tenacious and malleable, and remarkably hard, this character being in fact so marked that it constitutes one of the greatest present difficulties in the working of the alloy.

The alloy of aluminum with silver seems likely to prove more useful as a material for articles of domestic use than the bronze, for notwithstanding the beauty of the latter, the fact of its containing 90 per cent. of copper would tend to limit its applicability more to articles of ornament than of utility. The silver alloy would not be open to this objection, but little seems yet to have been done with it.

A very interesting collection of articles manufactured in aluminum bronze have been exhibited for some few days by Messrs. Mappin, of Regent Street, who have taken up the working of this metal and its alloys in earnest at their Sheffield works.