Scientific Museum.

For the Scientific American.

More about Cochineal to Dye Silk.

SCARLET AND CRIMSON.

All silk which has its natural gum in it, must be boiled in strong soap to take away its gum, which it will do, showing that more substances than either turpentine or alcohol can dissolve it. Spun silk for dyeing has only to be well wet out in very hot water, it is then wrung up and scutched well out. For scarlet it is bottomed with a good full annato yellow, washed out of it, and wrung up for the spirits. The spirits or mordaunt for silk to be dyed red is the nitro-muriate of tin, yet for a sure and excellent spirits, the simple muriate of tin can answer every purpose.

Kurst, the German, who first brought the secret of using the nitro muriate of tin in dyeing with cochineal, to London, established, or laid the foundation in that city for making the best cochineal colors, at least on silk, in the world, a pre-eminence which she enjoys in some respects even at the present day.

The mordaunt is made up in a tub, a little warm, with about three oz. of white tartar to the pound, and spirits made up in the tub to stand two in the No. 1 hydrometar. The silk is agitated or well handled in this liquor, for about four hours, after which it is taken out and wrung or squeezed, to be entered in the cochineal. But previous to this, (getting the mordaunt,) the silk should have been dyed for scarlet a bright yellow with annato.

The tubs for dyeing silk in, are wide at the mouth and narrow at the bottom, being deep enough to work at without stooping. The best way to prepare the cochineal for dyeing silk, is to boil it for about fifteen minutes in bran water, and then put it in your tub which must be made up at a good heat and with soft water. Three oz. of cochineal boiled in bran water will make a good color, but four oz. may be used in any place where the dyeing of wool is carried on; for the grounds can be used in dyeing scarlet again, and thus no loss will be sustained; but always boil the cochineal, if you have no way to use up the *garglings*. The silk must be handled very quick in the cochineal at the first, but more slow as your liquor gets cold. It is generally handled about four hours and then let down in the liquor, till next morning, and taken out and then slightly washed and dried. This is the way to dye a scarlet, and you might make it a crimson easily by blueing it down in water which contains the slightest portion of lime. First the silk is made a yellow with annato, then it gets the mordaunt, after which it gets the cochineal. This is the most beautiful red on silk. Any person who would like to dye a piece of scarlet silk for themselves, may do so, by using alum for a mordaunt. A certain Dr. Berkenhout once swindled those wise savans, the Lords of the Treasury, in 1715, out of $25,000, for an alleged discovery of dyeing scarlet on cotton and linen. It was a great humbug. Dr. Berkenhout's receipt was transmitted to the London Dyers' Co., by the Lords of the Treasury. It has since been published, and it shows how adroitly the Doctor imposed upon those learned rulers.

Before cochineal became to be used, a small insect found in many parts of Europe, called kermes, was very much used with an alum preparation in dyeing red. It is a color nearly as bright and beautiful as that produced by cochineal, and far more durable. All the old tapestry in the churches were dyed with kermes. It is now out of use.

On wool salmon colors can be dyed with cochineal and quercitron bark, also oranges, only proportion your stuff to the depth of your color. Muriate of tin and tartar are put in along with the drugs.

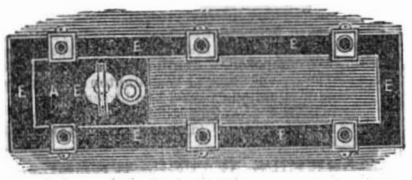
No one can dye to shades, but from long experience. Puce colors and lavenders, also violets may be dyed by a cochineal color first and afterwards bringing them to shade with sulphate of indigo.

COCHINEAL is a most splendid red paint, much used for showy drapery, but it is not so permanent as madder lake. The following is said to be the best receipt for making it—a little superior to the one in the last number of the Scientific American:—4 oz. fine pulverized cochineal, boil it 15 minutes in pure soft water in a tin vessel, and add two drachms of crystals of tin and 2 drachms of crystals of tartar and boil five minutes longer; take it off the fire and let it stand till cold, then pour it off into crystal vessels for two days, when a thick sediment will have fallen to the bottom, pour off the clean liquor and let the sediment be dried, and then it is fit for the painter, but ought to be kept in a tight glass vessel.

Hollow Iron Moulding.

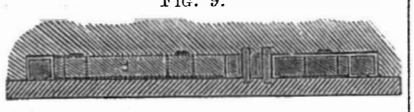
(Concluded from page 24.)

FIG. 8.



After the box is removed, the plate and its overlying core of sand, placed in the recess at the cylinder end of the pattern, are lifted out of their position by arms through the core, and carry with them the pattern of the steam ways. The pattern is not in one piece, the flange is separate, and is lifted off towards the upper side of the core and the remainder of the pattern is drawn out by the under side. The parts of the mould near the pattern core are pierced with small holes by fine wires, rendering the moulding more porous, to facilitate the escape of gas and air. The mould is also watered along the edges. The pattern itself is taken out all at once, by pins secured to it at various places to lift it vertically. This is done by several persons and with great care, lifting the pattern truly and gently with one hand, and striking it gently and constantly with the other. When breaks are made they are repaired with damp sand and the trowel. The moulding is next smoothed on the surface with the trowel and a sprinking of charcoal is smoothed on it, but for very large castings this is omitted, and sometimes finely pulverized sand, in a bag, is dusted over it. The moulding is now ready for the reception of the cores, a very particular operation, both in making and fixing the same.

FIG. 9.



Cores of several forms are necessary for the completion of the moulding. There are, first, the cores for the column sockets, of which there are six; then the cores for the intermediate portions of the sole plate, of which also there are six, there being two on each side between the socket cores, and one at each end; again, two cores for the steam ways, with several other minor cores, for the holding-down-bolt holes in the snugs at the bases of the columns, and for the holes that may be required for the bolting down of pedestals, &c., to the sole. For these, there are simple prints sprigged upon the pattern at the proper places, the impressions of which in the sand serve to hold the cores securely.

Cores must be made not only of the exact size and shape of the vacancies in a casting, whether partial or thorough, which they are intended to form; allowance must also be made on them for the core-prints, when these are necessary. This allowance then is provided in the cores for the column sockets, for which there are prints on the other side of the pattern, fig. 7. These sockets go through the sole, and are square in the body, and round at each end, as may be understood on referring to figs. 5 and 6, and to the annexed fig. 8. which is a plan of the moulding, showing the cores in their places.

Fig. 9 is a longitudinal section of the moulding, taken through the steam ways. F, F, F, is the sand of the floor, in which the moulding is formed, B B, &c., are the cores of the column sockets, seen in the section; C, D, are the cores for the steam ways which, in fig. 9., are seen projecting into the sand, above and below, filling the recesses made for them by the prints. They are formed in boxes, which open in two, for the purpose of extracting them. These, with all the other small cores, are dried upon hot plates, heated by stoves. At A, and E E, &c., the cores are shown, forming the spaces in the moulding intended to be vacant. Near the under side of each, in fig. 9. are the plates indicated by dark lines. which sustain the cores. The whole, however, must be sustained by the bottom of the moulding, leaving a space of the required thickness of the casting. This is effected by placing strips of sheet iron of small lengths there, but with double knees. If the depth of these be just the thickness of the metal then by placing several of them along the bed of the moulding, they support the cores placed over them, keeping the space clear for the metal. These strips or steeples are imbedded in the casting, where they remain The double knee cores at both ends of the moulding in fig. 8, are put together, each in three pieces. In constructing the cores E, E, &c., plain square bodies of sand of the dimension of the interior of the casting, first formed in boxes of the same size including at the same time the iron frames enveloped in the cores. The small cores that are necessary to the oblong openings in the sides of the casting are simply attached in their proper positions to the sides of the main cores E, E, &c. They are formed and fixed on by simply applying upon the larger core, an open box of the form required, into which sand is packed, thus causing it to adhere to the main core; when the box is filled, the sand is squared off by a straight edge. All the other smaller cores having been made and set in their places, the moulding is finally closed, the upper box being replaced, as seen in section I I, fig. 9. This requires to be done cautiously and in a truly vertical direction, as it now receives the upper ends of the cores which project above the moulding, and also bears upon the other cores large and small which do not require any additional security.

When convenient, two or more gates are connected to one central reservoir, all built on the surface of the sand. Gates at considerable distances from one another are usually supplied separately with iron from hand ladels. The other gates that are connected are supplied from crane ladles, which are conveyed by cranes from the cupola to the moulding. The flow-gates, while the metal is being formed, are plugged with clay-balls, to "keep down the air" in the moulding. These plugs are drawn out when the moulding is filled, and the iron flows up. It is thus judged whether the casting is complete. The plugs must not be prematurely drawn, as by the two free egress given to the air, the bottom of the mould is apt to be disturbed by the air confined in the sand.

When the metal is poured, the "feeders" are immediately applied at the flow-gates.—These are rods of iron, which are plunged into the liquid iron, and wrought up and down in it. By this agitative process, the liquidity of the iron about the gates is longer than otherwise maintained. It is therefore enabled to supply itself with additional iron from the flow-gates, for it must be understood that in the cooling down of large bodies of metal, the surface sets, while the interior is liquid; and therefore when the interior farther contracts, it draws in the surface metal toward the centre, and if not fed as above described, the casting assumes a vesicular structure, which weakens it considerably.

To Dye Madder on Wool.

Madder is another stuff used for dyeing red on woollen, silk and cotton. On wool it is dyed by having your goods exceedingly clean and preparing them in alum, in the boiler, for about three-quarters of an hour, at the rate of 4 oz. alum to the pound of wool; the goods are then taken out and well washed. The madder (fine crop) ought to be raised at the rate of one half pound to the pound, and it ought to be steeped in bran the night before using, as a slight fermentation is excited with the bran and madder which extracts all the fine color out of the madder, and being put into the boiler cold and brought up gradually to the spring of the boil, the goods working at the same time, a fine rich color goes on gradually, which is not so readily to be the case in any other process. Never bring the madder above the spring of the boil, or a coarse brownish color will also come out of it, and dull your red. Madder is used most extensively in cotton dyeing, but not much on wool, although it is the most permanent of all reds.

The National Intelligencer states that on Saturday in the Washington Centre Market, Mr. Howlett. of that city, gardener and florist, exhibited a number of pineapples of his own raising, from the crowns of the foreign fruit which were thrown into the street and picked up there about a year ago.

Crossing the Alps in a Balloon.

M. Arban, a French balloonist, has recently made an ærial voyage from Marseilles, in France, across the Alps to Italy. In eight hours he was carried 420 miles.

LITERARY NOTICES.

THE BANKER'S MAGAZINE AND STATISTICAL REGISTER, for October, contains a valuable collection of able articles, interesting to all classes. Among these "The Law of Demand and Notice of Protest," "Government, Finances, Treasury Notes, Revenue and Expenditure of 1846-49," "A Practical Treatise upon English Banking, by an able Financier," "The Condition, Past and Present, of the Ohio Banks," "The Rail Roads of Great Britain—cost of each, cost per mile, dividends, weekly dividends," &c. This Magazine is edited by J. Smith Homans, Esq. Published in Baltimore, at $5 per annum. It has already reached its fourth volume, and is undoubtedly the most comprehensive and able work upon Banking extant. Since the commencement of this and during the publication of the last volume, it presented articles never before published by any other magazine; among them we notice the following: "Chief Justice Taney on Transfers of Stock by Executors;" "Baron Humboldt's Essay on Precious Metals;" "Treatise on Practical Banking," by A. B. Johnson, Esq., of Utica—a very able production; "Opinions of Joshua Bates and other emininent English Bankers, upon the Commercial Crisis and Bank of England;" "Improvements in Bank Note Paper for the Prevention of Forgery," besides many other able articles, which for the want of space we cannot refer to. We can only add that $5 could not be more profitably expended than to pay it for a volume of this work. D. Felt & Co., and Hosford, 50 Wall street, N. Y., are agents.

The October, number of the PHRENOLOGICAL JOURNAL is before us. It presents the mental character of Dr. Joel Shew, of this city—the pioneer of the Water Cure System in this country. It also presents the character of the notorious Maria Monk, who recently died in the Alms House at Blackwell's Island. The contents of this number are unsually sound and instructive and is marked with the usual ability which characterises the efforts of Messrs. Fowlers and Wells.