The Art of Dyeing—No. 7.

BLUE ON COTTON—In the last article we described the method of dyeing indigo blue on cotton by the cold vat. Blue color can be dyed by various plans and with different substances.

INDIGO LOGWOOD BLUE—The old-fashioned logwood blue is dyed by giving cotton a bottom of indigo and topping with logwood. A middling deep shade of indigo is first dyed on the cotton by either three or four dips in the blue vat, then the goods receive a weak sour (vitriol and water,) are washed, run through a tub of pyroligneous acid (mordaunt) then squeezed or wrung, then run through a tub of warm water, and wrung or squeezed for the logwood. The quantity of logwood given depends on the depth of shade desired. About three pounds of logwood for every ten pounds of cotton, makes a heavy topping. The color has a deep coppery blue appearance, like a very rich indigo color, but the logwood being fugitive it soon fades. The goods are generally raised with alum—for an *alternate*—in the logwood, after receiving five turns in the logwood liquor; with three more turns they are fit to be lifted out, washed, squeezed, or wrung, and dried.

LOGWOOD COPPER BLUE—Take the liquor of five pounds of logwood well boiled, and two ounces of the sulphate of copper dissolved, and put them into a tub for ten pounds of cotton. Enter the goods and handle well by turning for fifteen minutes. Lift them out then, and enter them into a tub of clean cold water, into which a quart of urine has been stirred, and then handle the goods in this for fifteen minutes, take out, wash, squeeze or wring, and dry. This is a very fugitive color, but it will answer very well for carpet rags.

COPPER BLUE—This color is dyed on cotton, by repeated dips, in a strong solution of the sulphate of copper, then in a vat of caustic ley. It takes about three pounds of the sulphate of copper to make a moderate deep blue—sea blue—it is a tedious color to dye; it stands washing well, and is of a peculiar tone—very chaste for gingham summer patterns.

CHINA BLUE—This is a light blue shade, and is given to cotton by neutralizing the sulphate of indigo with the acetate of lead. It will not stand the action of an alkali, but is a very clear toned color. Some neutralize the sulphate of indigo from chalk, but the sugar of lead is better, though dearer. This makes a very fine paste blue when thickened with gum, for calico printing.

The sulphate of indigo is made by feeding gradually ground indigo—the best quality only should be used—into pure sulphuric acid, and stirring up until all the indigo is dissolved. Five pounds of vitriol requires one pound of indigo, which is ground in a mortar, and sifted through a fine brass wire sieve.

ROYAL BLUE—This color until within a few years, although well known, was seldom dyed on cotton, because it was so expensive and difficult to make it dark. For many years it was known by the name of "Prussian bue." It is dyed with the nitrate of iron, logwood, salts of tin, and the prussiate of potash.

Take three tubs and make the first up with a strong salution of the nitrate of iron, (prepared by dissolving clean iron hoops slowly in aquafortis) about 5° in a Twad. hydrometer, and handle the cotton in this for fifteen minutes; then lift, and squeeze or wring. Enter again into a tub of logwood liquor very strong, into which has been added a solution of the crystals of tin, handle in this for ten minutes, then lift, wring or squeeze. Enter again into a clean tub containing a solution of the prussiate of potash, and handle in this for ten minutes, then lift and add some of the muriate of tin, and the oil of vitriol, enough to change the liquor from a bitter to a slightly sour taste, enter the cotton and give five turns, then lift up, wash well, and wring or squeeze for drying. This process makes a deep rich blue color, and is nearly as permanent as an indigo blue. For ten pounds of cotton it takes four pounds of logwood, one of the crystals of tin, and one of the prussiate of potash. Light shades of blue can be made by using less dye stuffs, and a weaker solution of the nitrate of iron; and for very light blues no logwood or crystals of tin are used, simply the two tubs—the nitrate of iron, and the prussiate of potash. For very light blues, the cotton must be bleached. Some use the crystals of tin in the iron liquor for light blues; it is best when this is done, if logwood is used, always to give some muriate of tin for raising along with the vitriol, in the prussiate of potash tub, as has been described, for the deep blue.

ROYAL BLUE ON SILK—This is dyed in the same manner exactly as on cotton. It will always be understood that the cotton and silk have been prepared by cleaning, to receive the dye, as was described in article 1.

China blue is dyed on silk with the sulphate of indigo, but it is a very fugitive color, it can be washed out with warm water, and even rain washes it off.

FAST BLUE—A very fast blue can be dyed on silk, by giving a bottoming of archil, then topping off in a *woad vat*, or a clear sharp, strong, indigo vat, used for dyeing cotton.

Very little logwood must be used in dyeing silk with iron and prussiate of potash.

Dyeing woolens blue in our next.

New Waterproofing Process.

The following is the specification of a patent recently obtained in England, by Henry B. Barlow, of Manchester, published in the last number of *Newton's London Journal* as a communication, from which we infer that it is a French improvement. It is an important and useful process.

This invention consists in a mode or modes of waterproofing and finishing certain textile fabrics and yarns made of wool, silk, hair, and such like animal substances, or a mixture of all or any of those substances with cotton, flax, or snch like vegetable matters, or any of those materials with other fibrous materials, by rendering them, to a certain extent, repellant of water, and imparting to them a finish of a lustrous or metallic appearance. To effect this purpose, the fibers of the fabrics or yarns are impregnated with a salt or a compound of a metal; one of the following being preferred:—Acetate, nitrate, or chloride of copper; acetate and nitrate of lead; nitrate and acetate of bismuth, or any other salts or compounds of those metals except the sulphates. The fabrics or yarns so impregnated are then subjected to the action of steam, charged or mixed with sulphuretted hydrogen gas, or other volatile compound of sulphur. In order to impregnate the plain, dyed, or printed fabrics or yarns with one of the above-named acetates, nitrates, and chlorides, or other salt or compound of the metals aforesaid, the goods are immersed in a bath containing a solution of any of the above-named acetates, nitrates, and chlorides, or any other salts or compounds of the above metals, of a specific gravity of from one-eighth of a degree to three degrees of Twaddle's hydrometer. If the solution be heated, the fabric or yarn will be more speedily impregnated; but some description of printed or dyed goods will not bear the application of heat without injuring the colors; and in such cases, therefore, the solution must be used cold, or at a temperature sufficiently low to avoid injury to the color or colors—the time of immersion being proportionately lengthened.—When the solution is heated to a high temperature (say about 200° Fah.,) and the goods are not very thick, a sufficient impregnation will generally be effected in a few minutes: but if the solution be cold, or the goods very thick, it may be necessary to continue the immersion from two to three hours, to insure a perfect impregnation. Instead of simply immersing the fabrics or yarns in the solution, mechanical action or agitation may also be applied, for the purpose of expediting or insuring an uniform impregnation of the whole of the goods immersed. After impregnation, the fabrics or yarns are rolled or pressed, in order to deprive them as much as possible of the superfluous solution which they contain, and prevent waste.—They are then washed; and, afterwards, the water is expressed from them by rollers, a press, or a hydro-extractor. If the goods be thin or fine, or of a delicate color, they should be partially dried before being subjected to the action of sulphuretted hydrogen, or any other volatile compound of sulphur, for the purpose of promoting a more uniform action of those agents.

If it be desired to impart a water-repellant property, or finish of a lustrous appearance to some parts only of the plain or previously-dyed fabrics or yarns, that object may be effected in two modes; by which also a pattern or ornamental appearance, or variety of effect, may be produced. According to one of these modes, the plain or previously-dyed fabrics or yarns are first impregnated with any of the acetates, nitrates, and chlorides of copper, lead, and bismuth, above named, or any other salts or compounds of those metals, except the sulphates, and washed, pressed, and dried in the manner above described, by means of printing-blocks or rollers, or any other convenient means. Those parts of the fabrics or yarns which are not to be rendered water-repellant or to have a lustrous appearance, are covered, by printing blocks or otherwise, with some material which will protect them from the action of sulphuretted hydrogen, or any other volatile compound of sulphur, during the operation hereinafter described. This protecting material may be British gum, or any other material sufficient to afford the requisite protection, and made up into a paste of about the same consistence as the printing colors used in printing textile fabrics; the fabrics or yarns being then dried, will be ready to be subjected to the action of the steam and sulphuretted hydrogen, or any other volatile compound of sulphur as hereinafter described. The other of these two modes consists in applying an acetate, nitrate, or chloride, or any other salt or compound of the above named metals, to those parts of the surface of the plain or previously-dyed fabrics or yarns which are intended to be made water repellant, or have a finish of a lustrous appearance. This is done by mixing up the salt or compound of the metal intended to be used with a small quantity of British gum, or any thickening substance, to about the same consistence as the printing colors above-mentioned, and then, by means of printing blocks, printing rollers, or other convenient means, impressing a portion of the mixture of salt or compound and gum or thickening upon the parts to which the lustrous finish is to be imparted. The fabrics or yarns being then dried, are ready to be submitted to the action of the steam and sulphuretted hydrogen, or any other volatile compound of sulphur. Plain fabrics and yarns, intended to by dyed or printed with any color or colors, may be dyed with, or the colors may contain or be composed in part of, any of the acetates, nitrates, or chlorides of copper, lead, or bismuth, or any other salts or compounds of those metals, except the sulphates. The plain fabrics or yarns which have been dyed with the acetate, nitrate, chloride, or other salts or compounds of copper, lead, or bismuth, except the sulphates, are then to be subjected to the action of sulphuretted hydrogen, or any other volatile compound of sulphur and steam, for the purpose of decomposing or acting chemically upon the metallic acetate, nitrate, chloride, or other salt or compound with which they may have been dyed—or enter into the composition of the coloring matter fixed thereon, and so imparting a water-repellant property, or bright, lustrous, or glossy finish to the colors or fibers of the fabrics or yarns. The process of producing a metallic sulphuret on or in the yarn or fabric may be effected by enclosing the yarn or fabric in a steam chest or chamber, and then introducing steam impregnated or mixed with sulphuretted hydrogen, or any other volatile compound of sulphur; or the sulphuretted hydrogen and steam may be introduced without first mixing them. The steam or mixture of sulphuretted hydrogen, or any other volatile compounds of sulphur and steam, should be injected into the chest or chamber until the requisite chemical action has been produced, which will generally be effected in from five to thirty minutes. The sulphuretted hydrogen, or any other volatile compounds of sulphur, may be applied. The fabrics are rolled together in a wrapper round steam cylinders, such as are usually employed in print-works for steaming goods, the sulphuretted hydrogen gas being introduced into the center of the cylinder, together with the steam; or the steam itself may be impregnated with sulphuretted hydrogen, or any volatile compound of sulphur, previous to its introduction into the cylinder: or round the cylinder, together with the wrapper, is rolled a piece of flannel or calico, moistened with a solution of an alkaline sulphuret, or any other sulphuret or compound that will yield volatile compounds of sulphur or sulphuretted hydrogen; but it is preferred to use one of the sulphurets of potasssium, sodium, ammonium, calcium, magnesium, barium, or strontium, and on such saturated cloth to place another wrapper of flannel or calico, and then the fabric to be operated upon; all these being rolled round the cylinder at the same time. The whole is then covered with a thick wrapper of the above materials, and submitted to the action of steam, during a space of time varying from five to thirty minutes. The fabrics or yarns may then be washed, dried, and treated so as to prepare them for the market, according to the purpose to which they may be intended to be applied.

The Prizes—Mechanics' Institute.

MESSRS. EDITORS—I should have acknowledged the receipt of the $100 by express, yesterday, but I had not time. Accept my thanks. I will still continue to solicit subscribers to your paper as long as I can lift a foot or raise a voice. The Board of Directors of the Institute has unanimously agreed to appropriate the $100 for books on mechanics. GEORGE AINSLIE.

Louisville, Ky., Jan. 25, 1855.

We announce the following decision in regard to the suspended prizes:—

H. B. Nightingale, Doylestown, Pa., and W. Hart, Philadelphia, having each sent 45 names, are each entitled to one-half of the 7th and 8th prizes—$37 50. 10th prize for 35 names, $25 to S. M. Bullard, Boston, Mass. J. Garst, Dayton, Ohio, and C. Davis, Troy, N. Y., having each sent 30 names, are each entitled to one-half of the 11th and 12th prizes—$17 50. This announcement will give satisfaction, we doubt not, to all parties interested, and those who have not already received their money, can have it at any time, upon sending their orders.

Wire Fences.

MESSRS. EDITORS—Will you or some of your intelligent readers confer a favor on us residents of the fertile and extensive prairies of Texas, by imparting through your columns the cost, delivered at the port of Lavuca or Indianola, of an iron fence five feet high, and an effectual barrier to hogs and cattle? I want about four hundred yards as an experiment, and if it can be afforded cheap enough, and prove a good fence, an immense amount will be purchased in this region, around Lavuca Bay. Yours, &c.,

S. S. REMBERT.

La Grange, Fayette Co., Texas.

[Our correspondent lately left Memphis, Tenn., as we notice in the papers, and it is not improbable that some of his friends in that place may be glad to learn his whereabouts.

Law Regulating the Sale of Coal.

A bill has passed a third reading in the Senate of Massachusetts regulating the sale of anthracite and bituminous coal, which requires it to be sold by weight, two thousand pounds avoirdupois to the tun. The coal must also be weighed before delivery, by a sworn weigher, under a penalty of thirty dollars.—[Exchange.

[We hope this bill will pass. It is a good one and much needed in New York, as well as in Massachusetts