The Art of Dyeing—No. 12.

ADVICE ABOUT INDIGO AND WOAD VATS—There are many receipts which can be followed exactly in the art of dyeing, by persons who are unskilled, but this cannot be done in the management of blue vats. The skill of the eye, which can only be acquired by experience, and likewise that of smelling, are necessary to manage such vats. And as they are very expensive, manufacturers should take heed to employ none but experienced persons to take charge of this branch of dyeing.

Within a few years past, the modes of dyeing Prussian blue on woolen goods in combination with tin and logwood, have been so improved, that such colors have (because they are very durable) superseded indigo colors on different kinds of woolen goods.—Receipts for these we will now present:

PRUSSIAN OR ROYAL BLUE—There are two ways of dyeing dark shades, first by *bottoming*, as it is technically termed, with logwood, and then dyeing with the prussiate of potash, or first dyeing with the prussiate and then topping with the logwood. The latter mode is the best.

For a dark blue, the goods do not require to be perfectly white, as the operation strips off all old colors. To every pound of wool, which must be clean, two ounces of the prussiate of potash is put into the dye kettle along with two ounces of cream of tartar; add nitric and sulphuric acid until the liquor (after the tartar and prussiate is dissolved) tastes like glauber salts. The goods are then entered, if in pieces, they must be well selvedged or winched, and if yarn well turned, and the liquor in the dye kettle gradually brought up to the boiling point. The goods are then taken out and a little more sulphuric acid added. After the goods are boiled for twenty minutes or half an hour, a beautiful and rich sky blue will have been imparted to them. They are then taken out of the dye kettle, washed and hung up for a few moments to drip. Another dye kettle with a small quantity of logwood liquor, (say a pint of strength No. 3 in the hydrometer, for every pound of goods,) should be now boiling, to which add a wine glass full of the muriate of tin, stir well, and enter the goods. The kettle must be kept boiling for half an hour, when it will be found that a deep velvety richness will be imparted to the blue color, and by adding a greater quantity of logwood with a proportional quantity of spirits (muriate of tin) a deep violet color will be the result. If some cochineal is used with logwood, a clear and beautiful crimson tinge is imparted to the goods. This color may almost be considered permanent—it at least occupies more than a middle part in the scale, between the fugitive and permanent. From its exceeding clear and rich appearance, this color on goods has received the name of *royal blue*.

Coarse goods dyed by the above receipt, may be made a very deep blue by the greater quantity of logwood used, and if the goods were first of all prepared with a small quantity of the sulphate of iron—so much the better.

The chemical name of prussiate of potash is ferrocyanide of potash, a yellow salt (K2., Fe.3, N. C.2.) A richer and deeper blue will be given by running the goods through a weak solution of the nitrate of iron, and then washing them prior to operating in the prussiate bath. Hydrochloric or muriatic acid, if used instead of the sulphuric in the boiler, imparts a peculiar purple bloom.

Light blues are dyed without the use of logwood.

By employing about three pounds weight of logwood to the ten pounds of wool, and half a pound of the bichromate of potash—all in the same kettle with the prussiate of potash and the spirits or salts of tin, a deep blue black will be produced resembling that produced in the pastel or indigo vat. It will not, however, stand exposure to the sun like indigo, but in other respects it is nearly as permanent.

For twenty pounds of wool, Smith says, three pounds of the prussiate of potash, and three quarts of nitro muriate of tin spirits are sufficient. These are placed in the dye kettle, the goods entered cold, and the liquor then brought speedily to a boil, and continued boiling for half an hour, when they are lifted, two pints of spirits added, and the boiling continued for some time longer. It must not be forgotten that the logwood is employed to deepen the blue, by simply forming a purple with the logwood and tin spirits. It is a color not difficult to dye by any person.

Photography.

This art has made great advances within the past few years, and it threatens to supersede that of the daguerreotype entirely. The difference between the two consists in the picture being taken on paper by the former, while by the latter it is taken on a prepared plate of metal. A very important patent trial relating to an improved process of photography, lately took place in London, as recorded in the February number of the *Glasgow Practical Mechanics Journal*, between Fox Talbot, plaintiff, and M. Laroche, defendant, for infringement of the plaintiff's patent, he being author of the art, which has been named "Talbotype," in honor of the discoverer. He secured an American patent in 1847, nine years after his first English one was granted, during which period he had made a number of improvements, and obtained three other patents. His first patented process, as then described, was as follows, "Select some of the best writing paper, and wash it on one side with a solution composed of one-hundred grains of crystallized nitrate of silver, dissolved in six ounces of water; then dry it, and dip it into a solution of iodine of potassium, press it between two sheets of blotting paper, and keep it for use. When wanted for pictures, it is washed with gallo-nitrate of silver, and placed in the camera like a daguerreotype plate. On being taken out, it is again washed with gallo-nitrate of silver, and held before a fire, when the image appears; it is then washed with the bromide of potassium to fix it.

M. Laroche set up the defence of non-infringement,—that his process was entirely different; also that Fox Talbot was not the first discoverer of photography. For the latter point of defence, the Rev. J. B. Reed, Vicar of Stow, an excellent practical chemist, gave testimony that he produced such pictures in 1839, by paper prepared with chloride of silver, and an infusion of galls, and that his pictures were exhibited at a soiree of the Royal Society in that year.—He had also used iodide of potassium, but admitted that he did not know how to develope the latent image, and that he learned this afterwards on reading an account of Fox Talbot's discoveries. The new process of M. Laroche was discovered in 1851, by a Mr. Archer, and for the other point of defence, was stated to consist in the use of collodion (gun cotton dissolved in ether,) mixed either with the iodide of potassium or ammonia, then poured upon a plate of glass (on which it forms a thin film,) immersed in a bath of nitrate of silver, and then placed in the camera. When withdrawn, the latent image is developed by pyrogalic acid, or protosulphate of iron, and is fixed with hyposulphate of soda. Some eminent chemists gave testimony that this was merely the Talbotype under a modified form; this was the opinion of Professors Miller, Brande, and Hoffman. On the other hand, Dr. Normandy and Robert Hunt (the latter perhaps the best authority of all) gave evidence that collodion possessed unknown photographic powers, and that pyrogalic acid was more sensitive than the gallic acid of Mr. Talbot. Some pictures were shown taken from living animals when in motion, and a beautiful view of Elsinore, and the three-crown battery of Copenhagen, were taken on board of the war ship *Calliope*, when passing at the rate of eleven knots per hour. This is certainly a great improvement in the art; we have never heard of any thing like it before. The Chief Justice, in summing up the case, stated, it was very evident that Fox Talbot was the first to discover the latent image—that is, although no picture may be seen on the paper when taken from the camera, it exists there, and can be developed—but as this was a philosophical discovery, from its nature, it could not be the subject of a patent which only embraced the means of producing the result. The verdict of the Jury was, that the plaintiff was the first inventor, but that there was no infringement of his patent by the defendant.

This is a peculiar case, and embraces features which, with the information we have presented (easily understood by all,) is of great interest. The whole value of this art depends entirely upon the discovery of the latent image and its developement, and yet it is such a discovery as cannot be protected by either the English or our patent laws. There seems to be a defect in such laws to meet such cases, but we really cannot see a remedy that would not be the means of retarding the progress of improvement. In this case it is very evident that the collodion process is a wonderful improvement on the old method, and it appears reasonable that it should not be held in abeyance to the idea of the latent picture being on the paper; all the rest of the process is different. The art of photography is becoming more extended in our city. Beautiful sunlight pictures of large size are now produced by our artists, many of which will compare favorably, by skillful coloring, with fine oil paintings. It is about fifteen years since sunlight painting was discovered, and yet, since that time, its progress has been so great, and its practice so extended, as to reach the ends of the earth, and command the wonder and admiration of all nations.

James Watt Festival.

A festival in honor of the great improver of the steam engine, was lately held at Dundee, Scotland. In a speech made on the occasion by a Mr. Smith, we find it stated that Watt was a universal genius; that at the age of 19 years he was a chemist, botanist, a natural philosopher, a student of medicine, and a mechanic of all kinds of work. He was a man of great modesty, gentleness, and kindness, yet possessed of indomitable perseverance. Although sickly when a boy, he lived to the age of 84, and went on storing up knowledge until the year of his death. He acquired several languages, was skilled in poetry, music, and architecture, and deeply read in German metaphysics. He certainly was the greatest mechanician that ever lived, and stands among mechanics, like Shakspeare among poets. His inventions have done more for elevating the working men to a nearer level with the aristocrats of Europe, than all the enactments of Parliaments. It has also been the means of rolling on the period of national brotherhoods, for every improvement that serves to facilitate travel, and promote commerce, serves to break down narrow local distinctions. His memory in America is revered; he is a noble representative of the mechanical classes. He built the engine of our first successful steamboat—the Clermont—for Robert Fulton, and he is held to be the father of modern mechanical engineering.

Milk Sickness.

Dr. Hall, in the last number of his *Journal of Health*, states that milk sickness is unknown in families where the cows are well fed. Such cows, he asserts, never give *milk sickness*. He has revelled in the use of the most luscious milk for weeks in perfect fearlessness of this sickness, while several persons died of it on the next farm.

Some persons have attributed this disease to a vegetable which the cows eat, but he tells our western farmers that if they feed their cows well they will never be troubled with the milk sickness.

Boston Coal Dealers.

In a debate which recently took place in the House of Assembly, Boston, on the bill relative to the sale of coal, there was some developements made with regard to the practice of some coal dealers, of a rather uncomplimentary character. One gentleman stated, that while certain carts were being loaded with coal at the yard of a dealer in Lowell, he saw six pails of water thrown upon each load before it was weighed and sent off to the buyers. Another gentleman stated that a buyer saw a dealer shovel off coal from his cart after he had weighed it. Several other cases of dishonest dealing in coal were stated as reasons for legislation to protect coal buyers.

All the dishonest coal dealers are not confined to Lowell; those in New York know a thing or two in that line also.

Life Boats.

The improved life boat for which a patent has just been granted to John Allen, of this city, (the claims for which are on another column) consists of a vessel composed of india rubber or some flexible material secured to a frame of such construction as to keep it properly extended, the vessel having the quality of being entirely closed in at pleasure, so as to exclude the water and protect the passengers. It is furnished with an inlet and outlet valve, and suitable pipes, through which pure air is admitted, and foul air discharged simply by the water acting upon its flexible sides to reduce and enlarge its inner capacity, and make it operate like a bellows pump. The principal portion of the frame consists of a central shaft composed of two metal tubes connected by a right and left-handed screw, by which it is readily extended and contracted lengthwise. These tubes have at their furthest ends disks, to which are attached a number of ribs of some flexible wood, each rib extending from disk to disk, and connected thereto with hinges. The covering is placed on these ribs and secured by plates or buttons. These ribs can be made to lie parallel with the shaft, or curved with it by simply turning a screw, and thus the covering is extended or distended in a very simple and convenient manner.

Ship Building in the United States.

The Philadelphia *Ledger* reasonably asserts that the ship building interests are like a barometer, indicating years of prosperity and adversity in commerce. Thus it says:

"During the forty years between 1815 and 1855, the number of vessels built in the United States, including canal boats, steamers, sloops, schooners, brigs, and ships, and, indeed, all descriptions excepting those constructed for the federal government, was thirty-nine thousand and ninety-two. The tunnage of these vessels exceeded five millions and a-half. The prosperity of this branch of industry kept pace with the fluctuations of the general prosperity, the periods of momentary depression witnessing the most terrible revulsions. It is only necessary, indeed, to consult the statistics of American ship building to tell when expansion was at its hight, and when a financial crisis prevailed. In 1832 and '33, over three hundred thousand tuns were built; in 1840 and '41, there was a decline of nearly thirty per cent. The year 1853 and the five preceeding years witnessed an increased development of this business; but for the last twelve months there has been a great decline. In 1853 and '54, in fact, the tunnage launched amounted to one-seventh of the whole tunnage built since 1815. The greatest ship-building State is Maine, which, in 1853, constructed 118,916 of the 425,572 tuns built. New York comes second, Massachusetts third, and Pennsylvania fourth.

Highths of Perpetual Snow in the Alps.

M. Roret has deduced from observations during the years 1851, 1853, and 1854, in the French Alps, that the hight of perpetual snow is 3,400 meters, or 700 meters above the hight stated in many works in physics and meteorology.

Fire Engines—The Tables Turned.

In 1654, the first fire engine ever made in this country was manufactured in Lynn, by a man named Jenks, for the use of the town of Boston. In 1818, a fire engine was made in the city of Boston for the city of Cincinnati. In 1855, the city of Cincinnati furnishes a steam fire engine for the city of Boston.