Science and Art.

Bronze Colors for Paper from Brazil-wood and Logwood.

When alum is dissolved by heat in a decoction of Brazil-wood, which has been cleared by standing for several days, a precipitate is produced on the cooling of the solution, which increases in proportion to the length of time the fluid is left standing, and at last contains nearly all the coloring matter. If this precipitate be washed once with water, and spread in a tolerably thick coating upon paper, it dries with a beautiful shining gold color, with a slight tendency to green, very like the dried wing-cases of the common *cantharides*. If the precipitate be made into a paste, mixed with a little size and glaze (prepared by dissolving wax in soap,) and then laid on the paper by means of a brush, it may be polished with an agate or glass ball, and then acquires a beautiful yellow metallic luster, exactly like bronze. It is, however, necessary for this purpose, that the paper should be so thickly coated with the color as to render it quite opaque.

A coloring matter obtained from logwood has exactly the same properties, but its preparation is somewhat different, and the metallic luster has more of a coppery tint, the former rather resembling brass.

If a freshly prepared concentrated decoction of logwood be heated in a copper kettle, and then mixed with chloride of tin, an abundant dark brown precipitate is obtained, which is to be collected without washing. This precipitate, when employed like the preceding one, communicates a copper bronze color to paper. A different shade is obtained when the hot decoction is first mixed with a little alum, and afterwards with a still smallerquantity of bi-chromate of potash; this precipitate is darker, and its luster, when laid on paper, has more of a yellowish tinge, so that it forms an intermediate shade between the two other colors.

All these precipitates are particularly adapted for the fabrication of marbled papers and paper hangings; for if the mixture of the size, glaze, and color is well effected, the metallic luster makes its appearance even on rubbing with a stiff brush.

The following are methods of preparing these colors:—

10 lbs. of good Brazil-wood are deprived of their coloring by repeated decoction in soft water, and the collected decoctions left standing for from four to eight days in an open wooden tub. The clear decoction is then poured away from the sediment, and put again into a clean vessel. Part of it is then heated, and whilst hot 5 lbs. of alum are dissolved in it, and the solution is mixed with the remainder. The precipitate will have collected in about eight days; it is strained through cloth till it acquires a pasty consistence, and preserved for use in that form.

10 lbs. of logwood are boiled twice with soft water, and the strained decoction evaporated to one-half in the kettle; 10 oz. of chloride of tin are then added, and the precipitate is strained through cloth.

The decoction is prepared and concentrated as before, and 10 oz. of alum are added to it, and allowed to dissolve; powdered bi-chromate of potash is then sprinkled in gradually as long as a sample taken out and laid on paper still appears dark blue; for this purpose 1 1-4 oz. are generally required. Too much of the bi-chromate of potash renders the color black, and spoils it. This is also strained through cloth.

Experiments on Digestion, and with Poisons.

The Philadelphia *Ledger* states that the dogs captured in that city are undergoing some interesting operations under two young physicians—Drs. Walton and Scholes, who are endeavoring to obtain a more thorough knowledge of digestion, by experimenting with the dogs condemned to death. Those selected as martyrs to science are well fed upon meats, bread, &c., and then allowed to exist from a half to two hours. After killing them, the stomach is removed, and the work of digestion noted Experiments have been made to ascertain the effects of strychnine, and chloroform as an antidote. One dog, just as he was, to all appearances, in the last agony of death, from the effects of this poison, had chloroform administered to him, and in a few minutes he entirely recovered, and ran about as if nothing had been given him. He was afterwards killed by a second dose of poison. These experiments are to be continued for some time.

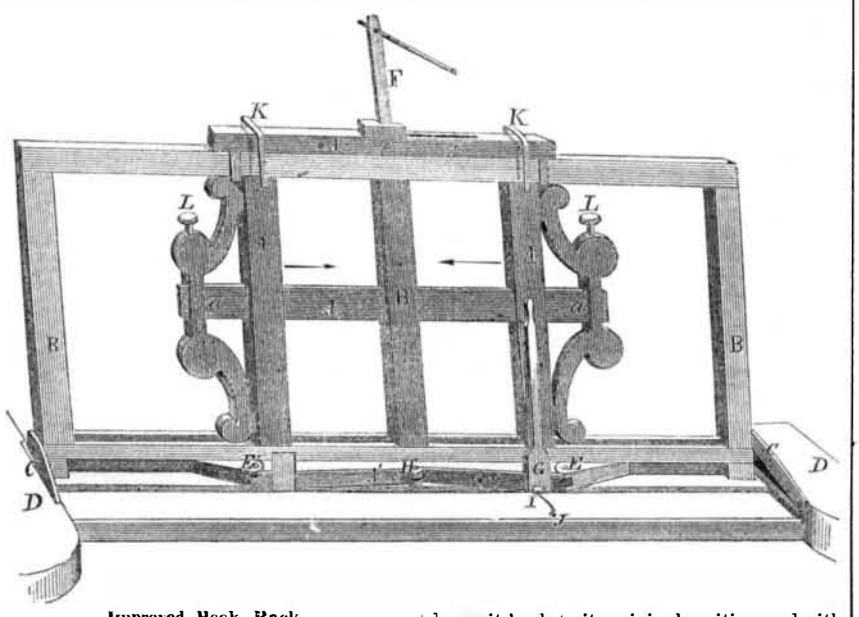
Curious Crystals.

On the coast of Africa, between Saldanha Bay and the Island of Ichaboe, the beach for miles is covered with sharp crystals, in size about four inches long, two broad, and one thick. Many of them envelope sand as if they had once been in a fluid state, and closed around the sand on the beach. These crystals are soluble in nitric acid, and are principally composed of the carbonate of lime and magnesia.

Composition of Human Milk.

From eighty-nine analyses of milk from women of varying ages from 15 to 25 years, Bequerel and Vernois obtained—water 889·08; sugar, 43·64; casein, 39·24; butter, 26·66; salts, 1·38. Total, 1000. The milk of young women from 15 to 20 years of age contained more solid constituents than that of those from 30 to 40 years. The milk of women with dark hair was found to be richer than that of those having light hair. When fed on spare diet, the milk of women becomes watery and deficient in casein and butter.

IMPROVED MUSIC BOOK RACK.



Improved Book Rack.

The improvement illustrated in our engraving presents several novel features. The rack consists of two frames, A A′, B, sliding laterally one within the other. A A′ moves, but B is stationary. The base, D, and frame, B, are hinged together by links, C, so that the apparatus may be folded together into small space.

The book rests upon the base, A′, which forms part of frame, A, and slides laterally. A′ is jointed at E E′, so that for very thick books the base, A′, may be pulled out and widened. F is a lamp support.

The leaves are turned by means of the tongues, G, of which there are several, all hinged at H. A small elastic spring cord connects with each tongue at H. The tongues after being placed between the leaves of the book, are fastened open by means of the catch, I, connected with which is a button, J. By touching J the stop, I, is moved, and one of the tongues released. The elastic cord previously stretched by opening the tongue, now draws it back to its original position, and with it the leaf. The upper part of the book is held by the hooks, K K. When it is desired to lengthen the sides of frame A, the end pieces, *a*, may be moved out and secured by screws, L.

This rack possesses all the advantages of the ordinary kind, besides many new and useful qualities. It prevents sheet music from slipping out at the bottom; turns the leaves at the instant required; holds the book firmly; keeps it smoothly open at the proper place, and thus prevents damage to binding, which is so common to music books; enables the music to be shifted laterally with ease, &c. We might mention other advantages, but those we have named are sufficient to inform the reader that the improvement is a highly useful one. It should form a part of every organ, piano, or melodeon.

Mr. Thomas Ward, of Birmingham, Pa., is the inventor, of whom further information can be had.

Patented May 20th, 1856.

Washing Fine Woolen and Muslin Articles.

The gall of oxen and cows has been used from time immemorial for removing grease and dirt, from fine woolen goods of delicate colors. Its action is the same as soap in removing the grease, while it is almost inert regarding the colors. In the hands of skillful persons, however, soap is just as safe, and is more pleasant to use, because the gall has an offensive odor. To use the gall, it should be mixed with just as much rain water as will allow the woolen article to be squeezed and handled freely. It requires considerable handling of the article in the liquid before the gall acts thoroughly. After the dirt and grease are removed, the dress, shawl, or whatever it may be that is washed in it, should be thoroughly rinsed in clean soft water. It will take three or four fresh supplies of water to remove all traces of the gall, from the goods, and none must be left in on account of its offensive smell. This is a very safe process of washing fine woolen articles of light green, blue, and various other delicate colors. Children's dresses of fine merino cloth may be safely washed in this manner. One gall will suffice for a small dress. Another plan, and a better one for washing fine articles of dress is to dissolve some fine soap in hot water, and allow it to become quite cold, then wash the article in this, taking care not to rub it violently. The soapsuds should be quite strong, or the soap will be decomposed by the grease in the article to be washed. The suds must be thoroughly rinsed out of the articles in cold soft water. Scented soap is the best to use for such delicate operations, because it imparts an agreeable perfume to the article of dress washed.

Another process for washing fine muslins of delicate colors, is to take some wheat bran—about two quarts for a lady's dress—and boil it for half an hour in some soft water, then allow it to cool, strain the liquor, and use it as a substitute for soap suds. It removes dirt like soap, is inert regarding the colors, and requires to be rinsed out in only one clean water, and starching is unnecessary. This is the best method of washing fine muslins and calicoes. A great number of beautiful dresses are often spoiled in washing by the discharge of their colors, from the use of warm suds. In all cases, the suds and rinsing water for colored articles of dress should be used as cold as possible.

A Cheap Red Fire.

Take 3 parts of powdered celestine, 2 parts of sulphur, and 3 parts of chlorate of potash, by weight, and mix them together.

Sharpening Old Files with Acid.

Make up some strong soapsuds in a pail and steep the files in it for half an hour. After this take and brush them well in the suds to remove all the grease and dirt from the creases, after which they are to be rinsed in clean soft water. Now, make up in a clean pail or stone-ware crock, which is better, an acid liquor composed of one pint of sulphuric acid to ten or twelve of soft water, and stir it well. Put the files perpendicularly in this for an hour, and examine them two or three times during the operation. The liquor must cover the files from the point to the shank. The acid attacks both sides of the file ridges, and eats away a portion of the steel, thus making them sharper. If the liquor is heated, the action of the acid is more rapid, and intense, but no person should pour sulphuric acid into hot water, as it is liable to spatter out in the face of the person pouring it in. This action does not take place by pouring the acid into cold water. Many accidents of burning with vitriol have resulted to inexperienced persons from want of knowledge regarding this phenomenon. When the files are properly *bit in*, by the acid, they must be rinsed in soft water containing some urine, or a little dissolved sal soda; they are finally rinsed in warm soft water and are fit for use.

A Lightning Well Borer.

During a recent thunder-storm at Kensington, N. H, the lightning descended perpendicularly in an intense discharge into a pasture field, and made a hole about a foot in diameter and 30 feet deep, forming a well which soon filled up with good water.

Maryland Artesian Wells.

An artesian well has recently been sunk to a depth of 185 feet and a full supply of good water obtained on the North Point battle ground, near Baltimore, Md., a place heretofore very deficient in that respect. This is the third artesian well in the State of Maryland; the other two being at Frederick and Annapolis.