

Patent Office reports, which we have so much admired. We are glad to see this improvement in government printing and engraving, and we hope that it will be carried forward until this class of work is done as well for the nation as it is for private individuals.

THE COLORS FROM COAL TAR.

Number 111.

Blue Colors.—We have already described the purple, red and crimson color derived from aniline. On the 30th of July, 1861, G. E. C. Delaire, of Paris, France, obtained an American patent for an aniline blue and violet. The following is an extract from the patent:—

Take ordinary aniline—red—purify and mix it with an equal quantity of pure aniline. This mixture is maintained during several hours at a temperature of 165° Centigrade. It then becomes a violet color, is mixed with water and hydrochloric acid, and is brought to the boiling point. The excess of the red aniline mixture that does not become a violet color is thereby dissolved; the residue that remains is the violet color sought. If this violet residue be boiled successively with hydrochloric acid diluted with a small quantity of water, and then washed in boiling water, a precipitate will be produced of a blue color with a copper tinge on its surface.

The claim is for the method described of converting the red of aniline into the blue and violet of aniline, by treating the former with pure aniline, in the manner substantially as set forth.

Blue de Paris is produced by heating, for thirty hours, in a sealed tube, at a temperature of 265°, one part of anhydrous bichloride of mercury with two parts of aniline. This color resists the action of weak acids and alkalis, but it assumes a red hue when acted upon by these agents in a concentrated state. It dyes animal fibers with facility. This blue was discovered by M. M. Persoz, De Baynes and Salvétat, of Paris.

White gum lac in powder, boiled with carbonate of soda and an alcoholic solution of red aniline, forms a blue for printing on calicoes.

Green Colors.—Messrs. S. Clif, C. Lowe and Dr. Calvert, of Manchester, England, obtained a patent June 11, 1860, for producing a green aniline color called emeraldine, on cotton fabrics. The process consists in printing an acid chloride of aniline on cotton cloth which has been prepared with a mordant of chlorate of potash. In a few hours after the aniline is printed on the cloth a beautiful bright green color gradually appears. If this green-colored fabric is then passed through a solution of the bichromate of potash, the color becomes a dark blue, called azurine.

Naphthaline Colors.—That beautiful, colorless solid hydrocarbon naphthaline, has lately been subjected to many experiments, for the purpose of obtaining colors from it, and considerable success has attended these efforts. It unites with nitric acid, forming binitronephthaline. This is boiled with sulphuric acid, and granulated zinc is added in small portions. The temperature is gradually raised to 392°, and the liquid becomes a deep red color. About eight volumes of water are now added, and the whole allowed to boil for a few moments, then permitted to cool down, when it deposits beautiful red and orange-colored crystals. According to Z. Roussin, a French chemist, it is of nearly of the same nature as alizarine obtained from madder. It colors a red on cotton by using a mordant of alum in preparing the fabric. Purple color can also be obtained from naphthaline by employing oxide of iron for a mordant. Naphthaline colors are but in their infancy, and not yet commercial products, but they may ultimately supersede many other colors.

Leucaniline.—This is a new and perfectly white base, obtained from pure rosaniline, by Dr. Hoffman, of London. Rosaniline is rapidly attacked by hydrogen in a nascent state, or by sulphureted hydrogen, and two equivalents of hydrogen are supplied to it, forming leucaniline. Its composition is $C_{16}H_{12}N_2O_2$; pure rosaniline, $C_{20}H_{19}N_3$. Thus, by supplying but two equivalents of hydrogen to the rose-colored substance derived from aniline, a white product is obtained, which is anhydrous, but soluble in alcohol. It is converted into a chloride when boiled with hydrochloric acid. This salt is of dazzling whiteness. It unites in solution with the bichloride of platinum and forms a salt, the crystals of which are of a brilliant orange color. Leucaniline unites with nitric acid, forming the nitrate of leucaniline, which is a white salt, soluble in water. It unites with a large number of agents, such as bisulphate of carbon, chlo-

ride of benzole, &c., forming new compounds. There seems to be a chemical relationship between indigo and these aniline colors. There is, for example, white indigo, the composition of which is $C_{16}H_{12}N_2O_2$, and blue indigo $C_{16}H_{10}N_2O_2$. These two equivalents of hydrogen make the whole difference between white and blue indigo, and two equivalents of hydrogen make the difference between rosaniline and white aniline (leucaniline). By supplying an oxidizing agent to leucaniline it becomes a deep red again. The peroxide of barium, perchloride of iron, and especially the chromate of potash, produce this change. When rosaniline is boiled for a long period with compounds rich in oxygen, it changes into an amorphous powder of a dark brown color. A fulminating compound is produced with the nitrate of leucaniline and the bichloride of platinum.

The Pleasures of Business.

Such complimentary letters as we receive from those for whom we act as attorneys fully compensate us for all the troubles and vexations attendant upon the management of a large business. The following favors of this kind were received by a single mail last week. Read them.—E.S.]

Messrs. MUNN & Co.:—Permit me to express my sincere thanks for the very able manner in which you have managed my claims for improvements in Rotary Pumps, bringing them to a successful issue. Very probably I should never have brought my invention before the public had it not been for the advice and encouragement received from you. It is an old adage that "necessity is the mother of invention," and I think there is much truth in the saying. Our national troubles the past year have deprived many mechanics of the greater part of their employment; necessity compels them to seek other channels for support. The inventive mind strives to bring to light something new that will enable him to establish a business for himself that his future welfare may not be so entirely dependent upon the caprice of others. And if there is one thing to encourage him more than another, it is to know that he can obtain such valuable information and advice as your long experience affords. Your institution is to the inventor what the beacon light is to the mariner—a sure guide to a safe haven. One of the many advantages to be derived from the employment of your Agency is, that it requires no personal attention after the matter is placed in your hands. I am satisfied that you make the interest of the inventor your own. My experience in the rotary pump business for the past ten years convinces me that the one on which, as you inform me, a patent is ordered to issue, will make the best practical working machine in the world and the easiest regulated and kept in order. I shall, at an early day, employ you to obtain a patent for the other devices of mine now in your possession. Before closing this long letter, permit me again to thank you for discharging my business with so much fidelity. With my best wishes for your success, I remain yours, truly, F. B. PIERCE. Brockport, Ill., May 6, 1862.

Messrs. MUNN & Co.:—Sir,—I suppose you would like to hear how one of your old customers is getting along with an instrument he had patented for cutting the noses of swine to prevent them rooting. To this I can say, first rate. I have sold over two thousand dollars' worth already and I am selling more or less territorial rights every day. It has proved a valuable operation. I am under a thousand obligations to you for favors in connection therewith, and I shall soon apply to you for services in getting out another patent. Respectfully, yours, REUBEN HURD. Spring Hill, Ill., May 5, 1862.

Messrs. MUNN & Co.:—Through your Agency we have obtained our patent, and for your kindness we return you our most sincere thanks. If I am prospered I shall endeavor to obtain another patent in the course of the year for another and different object altogether, and I shall surely apply to your Agency in preference to any other. I have just received a number of circulars from Washington setting forth what certain parties there will do for me, but I cannot help them nor shall I permit them to help me. Truly, yours, C. M. FRENCH. Woodport, N. Y., May 31, 1862.

Conservatory in the Central Park.

The Central Park Commissioners have contracted with Messrs. Parsons & Co., of Flushing, for the construction of a grand conservatory, the largest in the United States, upon the Park grounds. The building is to be a "Crystal Palace," of iron and glass, 200 feet long, 70 feet wide, and about 50 feet high. Its base will be a parallelogram, and there will be three stories, curving inward like the successive folds of a turban. The conservatory will front Fifth avenue; its center being opposite Seventy-fourth street; and directly in its rear will be a beautiful little pond, with walled sides of a symmetrical shape, which will be built during the coming two years. When the Fifth Avenue is graded to its proper height, it will be on a level with the second story of the proposed conservatory; and the main entrance to the edifice will therefore be on that story. Stairs and balconies will give access to every portion of the building. The contract provides that the grantees must erect the building entirely at their own expense, after the plans already agreed upon; that they must place

in it nothing but flowers or rare trees or plants; that they shall be allowed to sell bouquets, &c., to visitors; that the public shall always be admitted free; that good order shall always be maintained inside, at the expense of the grantees; and that the work shall be completed by the first of January, 1864. The specifications of the contract are minute, and are believed to cover the objections which might be made to the granting of a monopoly of such a character. The grantees on their parts, agree to pay a rent which will add considerably to the revenues of the Park. The conservatory will cost about \$50,000.

A Yankee Soldier.

The following characteristic sketch is from the *Commercial Advertiser*, Honolulu, Hawaiian Island:—We heard a few days since an anecdote which well illustrates the character of a large class of the American people, and the readiness with which the peaceful citizen becomes changed into the soldier. Most of our townsmen will remember Mr. J. Griswold, who came to Honolulu some two years since, and made one or two voyages to the Phoenix group and other islands, searching for guano. Hearing of the rebellion, he returned immediately to Honolulu from one of his expeditions, having determined to enlist in the army. Procuring a book on army tactics, he went through a series of daily drills under the tutelage of Captain J. H. Brown, the experienced commander of the Honolulu Rifles, until the sailing of the packet for San Francisco. On the passage home, he applied himself to the study of military tactics, and on reaching New York immediately offered his services, was examined and accepted as a captain, and within ninety days after leaving Honolulu, embarked to take an active part in the famous Burnside expedition to North Carolina, which has just gained a victory in the capture of Roanoke Island, and a half dozen towns and villages in the neighborhood, and promises soon to capture Richmond. This instance will show how readily, if necessary, the Americans can and will raise an army of a million soldiers to meet their foes, whether from within or without.

Cost of Raising Sorghum.

S. Ward communicates to the *Prairie Farmer* the following statement of the expense of raising Chinese sugar cane, and manufacturing the sirup, the result of his own experience:—

Use of one acre land.....	\$5 00
Plowing.....	1 00
Dragging and marking out.....	50
Seed.....	50
Planting.....	1 00
Cultivating.....	1 00
Hoeing.....	1 00
Stripping.....	4 00
Cutting and topping.....	2 00
Drawing to mill.....	4 00
Two hands and one horse 1 day making sirup.....	10 00
Fuel.....	3 00
Use of mill.....	4 00

Total..... \$40 00

Or, 160 gallons of sirup at 40 cents..... \$64 00
Cost..... 40 00

Profit per acre..... \$24 00
Or, 160 gallons sirup at 25 cents per gallon.

If a farmer should get his sirup made on shares the cost, according to the above account, of raising and drawing to a mill (if near by) would be \$18.

Receives 80 gallons sirup..... \$32 00
Cost..... 18 00

Profit per acre..... \$14 00
Or, 80 gallons sirup, costing 22½ cents per gallon.

The "London Quarterly" on the "Monitor."

We have received from the publishers, Leonard Scott & Co., the April numbers of the "London Quarterly" and "Westminster Reviews." The "London Quarterly" has an able article on the fight between the *Monitor* and the *Merrimac*, in which the writer takes the same ground that was taken at the time by the *Scientific American*. The English Parliament and people are rebuked for their foolish excitement on the subject, and the superiority of stationary over floating fortifications is plainly shown. It is stated that the expense of a gun on a steamer is nearly four times greater than that of a gun in a fort. The writer also remarks that iron forts will be little if any more costly than those of granite, from the thinness of iron walls and the absence of internal piers.