### Aniline Colors.

The following on the subject of aniline colors, from the pen of Mr. P. Kuntz, of Paris, may be useful as a concise *resumé*: The first colors employed were the violets; it was only in 1859 that aniline red was discovered, and by whom first is not clear. Aniline red, rosaniline, or fuchsin is now usually prepared by the mixture of aniline with arsenical acid and water, or aniline and arsenical acid found in commerce in the state of sirup, and which contains sufficient water for the purpose. Pure rosaniline has scarcely any color. According to the opinion of Hoffmann, generally accepted, the coloring matters produced by the various reagents from aniline are all salts of one and the same basis, the rosaniline. The colors of the salts of rosaniline are not permanent, they will neither withstand ley, soap, nor the effect of light; but their base serves in the preparation of other coloring matters which are of great interest. The resinous residue of the preparation of fuchsin, treated with different solvents, gives the chrysaniline, violaniline, mauvaniline, etc. The color recently introduced into commerce under the name of cerise, and the tint of which, less scarlet than that of fuchsin, approaches rather to poppy color, is also obtained from the residue of fuchsin. By treating fuchsin by means of various agents, and in various methods, the most varied tints of red are obtained. One of the colors most employed in the dyeing of silk, saffranine, the magnificent color of which approaches scarlet, is obtained by a method the details of which are but little known. The blue colors derived from aniline are produced by numerous methods, the great part of which remain laboratory curiosities. The number of processes which have entered into actual practice are relatively very few. The most advantageous are those first indicated by M. Girard and M. Laire, in which the salts of rosaniline are heated with aniline. It is believed that the production of these blues is based on the introduction of phenol into the composition of rosaniline. They are classed under the generic appellation of Lyons blue. Different phases of the manufacture yield different products, some of which are insoluble in water, and are called *bleu direct*, *bleu purifié*, or *bleu lumière*, the last being entirely exempt from any tinge of violet; the others, which are soluble in water, constitute the industrial coloring matters.

The *bleu de Paris* is obtained by the action of the bichloride of tin on the aniline of commerce. Other blues have been successively added to the list, some discovered accidentally, others by scientific experiments.

The violets likewise are the results of the action of various agents. They seem to be produced by the mixture of blue and red in very different proportions; in many of the processes, it is very difficult to obtain the precise tint required. According to the intensity of the preponderating tint, the violet is too blue or too red. The violet of Hoffmann, dahlia, is obtained by the mixture of rosaniline or of a salt of rosaniline with the iodide of ethyl and concentrated alcohol in different proportions. The violet of Paris results from the mixture of methylated spirit, chloride of ammonia, and aniline, by the method of MM. Poirier and Chappart. Perkin's violet, which was the starting point in an industrial sense, is prepared by bringing bichromate of potash into contact with sulphate of aniline, and treating the precipitate with wood spirit, which absorbs the coloring matter. The spirit is then evaporated and the residuum mixed with water with the addition of soda, which precipitates the coloring matter.

The most important green pigments derived from tar are those of Usebe and Hoffmann. The former was discovered accidentally, by a workman named Cherpin, who, not being able to fix aldehyde blue in a tissue, applied to a photographer, who recommended him to try hyposulphite of soda, the result was the production of a magnificent green color. Aniline browns are but little employed. Aniline yellows are numerous; most of them, however, have an orange or brown tint. Aniline black may be said to be almost exclusively for cotton.

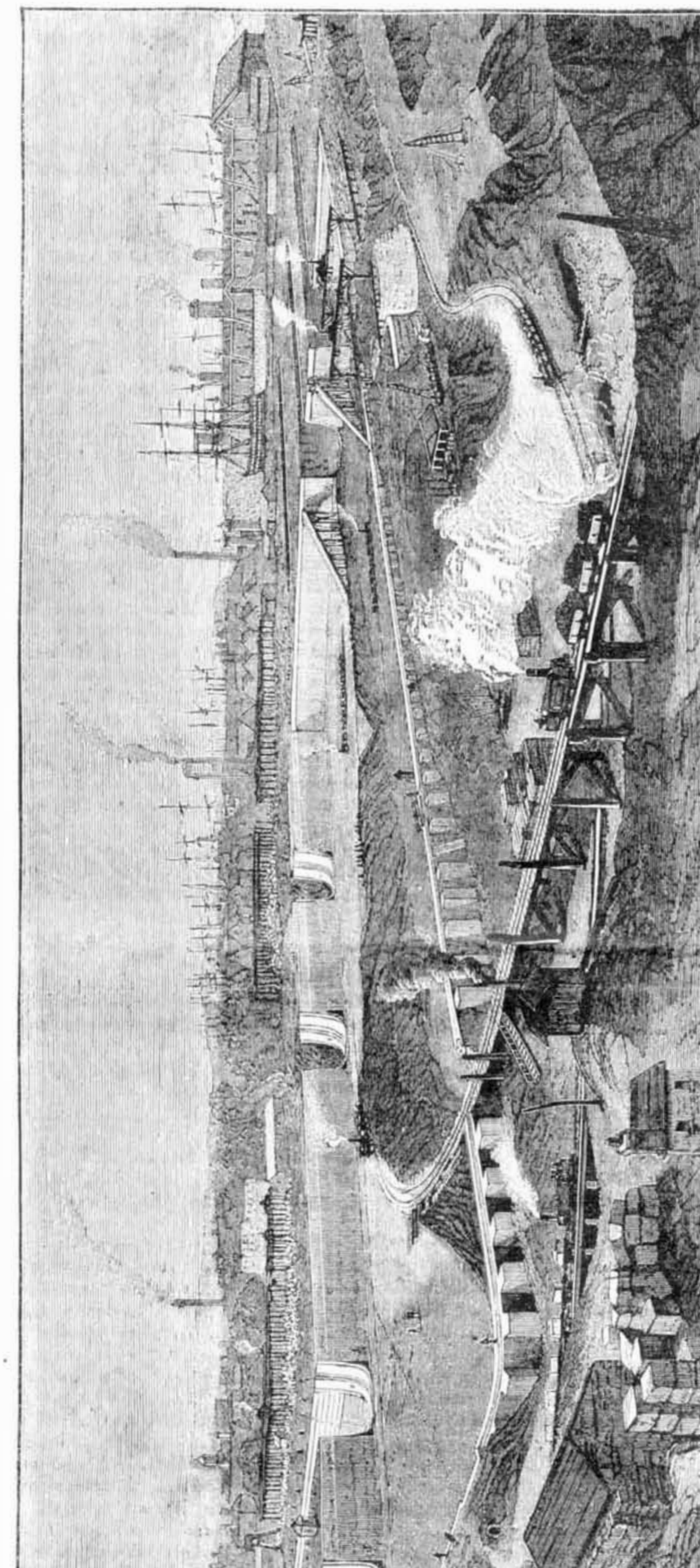
The employment of these colors is very simple. Silk, whether in hanks or woven, is dyed by simple immersion, and wool in the same manner. The same colors also serve for printing on silk and woolen fabrics. For cotton, the colors must first be mixed with albumen and then submitted to the action of steam; or they are printed on cloth prepared with tannin, which forms with the pigments insoluble products. Aniline is not the only substance derived from tar which yields coloring matter. Naphthaline, which distils at 428° Fah., yields among others the yellow of Marius, one of the most brilliant and purest yellows known, which dyes woolen and silk without mordant, from light citron to gold of the purest tint with true yellow reflections, differing from the greenish yellow shade of picric acid, another substance derived from tar. Naphthaline red is superior to the aniline reds, and possesses greater solidity; but it can only be employed for light tints, as it loses its brilliancy in the darker shades. These two are the only colors which napthaline supplies at present to industry; the others have not sufficient purity, brilliancy, or freshness, and are too much affected by light and atmospheric influences; their price is also at present, too high.

Anthracene, which distils (at a temperature above 360°) with the last products of tar, has, on the contrary, a brilliant future, since the important discovery of its transformation into alizarine. Anthracene is still too dear to come into dangerous competition with madder; but its production and the apparatus used are being reduced to greater simplicity. It is a carburet of hydrogen. Artificial alizarine is prepared by means of bromine and potash. According to the calculations of M. Kopp, in order to replace completely the alizarine of madder and purpurine by artificial alizarine, 704 tuns of the latter would be required in the dry state, which is equal to 7,044 tuns of the raw color. It would require 2,720 tuns of the raw artificial alizarine to replace the true alizarine only; this quantity represents about 720 tuns of anthracene.

### THE DOCKS AT PORTSMOUTH, ENGLAND.

The well known town of Portsmouth, in England, is not only a thriving business place and a commercial port of considerable extent, but it is the chief station of the British navy, and has, on this account, been so strongly fortified that it is deemed by many high authorities to be absolutely impregnable. The fortifications are bastioned ramparts faced with masonry, and inclose the whole town, to which entrance is permitted by four carriage ways; and outworks, in the form of trenches, are arranged to protect the inner line of walls. The harbor is only 220 yards wide at the entrance, but broadens to a width of about six miles; and on the waters of this naturally secure bay, the whole British navy can safely find anchorage.

The dockyards of this immense naval station, large as they are, are not sufficient for the accommodation of the ships under repair, and some very important additions are now being made. We publish herewith a view of the works now under construction, from which a good idea of their nature and magnitude may be formed. The immense blocks in the foreground show how concrete is coming into use not only in ordinary work, but in situations where strength and permanency are points to which expense is not to be compared. The large repairing and refitting basin, from which numerous dry docks of great size branch off, is nearly ready for the inlet of the waters, on which ride the ships whose masts are seen in the distance, towering above the buildings.



THE DOCKYARDS AT PORTSMOUTH, ENGLAND.—THE NEW REPAIRING BASIN AND DRY DOCKS.

### Cutting and Storing Grafts.

There is no better time to cut grafts, says the London *Garden*, than at the commencement of winter. In cutting and packing them away, there are some precautions to be observed. In the first place, let them be amply and distinctly labeled, as it is very annoying to find the names gone at the moment of using them. For this purpose they should be tied up in bunches, not over two or three inches in diameter, with three bands around each bunch—at the ends and middle. The names may be written on a strip of pine board or lath, half an inch wide, a tenth of an inch thick, and nearly as long as the scions. This, if tied up with the bunch, will keep the same secure. For convenience in quickly determining the name, there should be another strip of lath, sharp at one end, and with the name distinctly written on the other, thrust into the bundle with the name projecting from it. If these bunches or bundles are now placed on end in a box, with plenty of damp moss between them and over the top, they will keep in a cellar in good condition, and any sort may be selected, and withdrawn without disturbing the rest, by reading the projecting label. We have never found sand, earth, sawdust, or any other packing substance so convenient, clean, and easily removed as moss, for packing grafts. It is needful, however, to keep an occasional eye to them, to see that the proper degree of moisture is maintained—which should be just enough to keep them from shriveling, and no more.

### Live Fish Trade.

Arrangements have been made for placing on board one of the steamers, running between Liverpool and New York, one of the American aquarium cars, a newly invented contrivance for transporting live fish, which has succeeded very well in long overland journeys, and by means of which it is hoped to effect a useful interchange of living fish of various kinds between England and America. There are many American fish which might with benefit be introduced into England, and we at the same time might transport to the other side of the Atlantic some varieties of fish which are not found there.—*Nature*.