COLORS AND THE FASHIONS.

Every spring and fall, labored descriptions appear in the daily papers of the "new fashions;" meaning thereby the style and colors of the new dresses, bonnets, &c., which the empress of fashion has prescribed to be worn for a few months, by the fair sex. So far as it relates to the cut of a cape, or frock, or the form of a bonnet, fashion may prescribe many forms without offending common sense; but fashionable colors are an absurdity. The laws of contrast in colors are immutable; therefore when fashion prescribes for a hat or its trimmings, or a dress, without taking the complexion of the wearer into consideration, taste and science may be equally violated. A clear blonde complexion may be rendered sallow to appearance by a mistaken color on a fashionable bonnet; and a comely brunette may be made to appear of a brick hue from the same mistaken ideas.

Colors of artificial flowers, bonnets and dresses, should always be selected with reference to complexion. M. Chevreul—the scientific French chemist—has devoted years of study to this subject, and has laid down the laws with precision, founded on the dogma—"That every color, when placed beside another color, is changed; appearing different from what it really is; and, moreover, it equally modifies the color with which it is in proximity." The following hints by Chevreul, for the toilettes of ladies, should be read and pondered by all who desire to cultivate harmony of colors and adorn their persons in the most scientific and pleasing manner:—

RED DRAPERY.—Rose red cannot be put in contact with the rosiest complexions without causing them to lose some of their freshness. Dark-red is less objectionable for certain complexions than rose-red because being higher than this latter, it tends to impart whiteness to them in consequence of contrast of tone.

GREEN DRAPERY.—A delicate green is, on the contrary, favorable to all fair complexions which are deficient in rose, and which may have more imparted to them without inconvenience. But it is not as favorable to complexions that are more red than rosy, nor to those that have a tint of orange mixed with brown, because the red they add to this tint will be of a brick-red hue. In the latter case, a dark-green will be less objectionable than a delicate green.

YELLOW DRAPERY.—Yellow imparts violet to a fair skin; and, in this view, it is less favorable than the delicate green. To those skins which are more yellow than orange, it imparts white; but this combination is very dull and heavy for a fair complexion. When the skin is tinted more with orange than yellow, we can make it roseate by neutralizing the yellow. It produces this effect upon the black-haired type, and it is thus that it suits brunettes.

VIOLET DRAPERIES.—Violet, the complementary of yellow, produces contrary effects: thus, it imparts greenish-yellow to fair complexions. It augments the yellow tint of yellow and orange skins. The little blue there may be in a complexion, it makes green. Violet, then, is one of the least favorable colors to the skin; at least when it is not sufficiently deep to whiten it by contrast of tone.

BLUE DRAPERY.—Blue imparts orange, which is susceptible of allying itself favorably to white and the light-flesh tints of fair complexions, which has already a more or less determined tint of this color. Blue is, then, suitable to most blondes; and, in this case, justifies its reputation. It will not suit brunettes, since they have already too much of orange.

ORANGE DRAPERY.—Orange is too brilliant to be elegant; it makes fair complexions blue, whitens those which have an orange tint, and gives a green hue to those of a yellow tint.

WHITE DRAPERY.—Drapery of a lusterless-white, such as cambric muslin, assorts well with a fresh complexion, of which it relieves the rose color; but it is unsuitable to complexions which have a disagreeable tint, because white always exalts all colors by raising their tone; consequently it is unsuitable to those skins which without having this disagreeable tint, very nearly approach it. Very light white draperies, such as muslin, plaited or point lace, have an entirely different aspect.

BLACK DRAPERY.—Black draperies, lowering the ones of the colors with which they are in juxtaposition, whiten the skin; but if the rosy parts are to a certain point distant from the drapery, it will follow that, although lowered in tone, they appear relatively to the white parts of the skin contiguous to this drapery, redder than if the contiguity to the black did not exist.

New Humid Process For Silvering Glass.

M. Adolphe Martin, Professor of Physics, at St. Aarbe, France, has described a new process of his for silvering glass without heat, and by means of sugar (*interverti*) which has been partially changed into glucose.

Amongst the various processes for silvering glass for optical purposes, and especially for the construction of telescopes, not refractors, but with glass silvered reflectors, is that of Mr. Drayton. This method, however, requires the utmost adroitness on the part of the operator, so that a new mode of greater simplicity was much required. Professor Martin says, after having experimented with all the previously known agents and methods of silvering—viz., with aldehyde; with sugar of milk; with glucosate of lime, &c.,—he has arrived at a process which gives all that can be desired, in facility of operation and firmness of adherence, and which gives a film of metallic silver whose physical constitution as deposited is such as ensures brilliancy and unchangeability.

The following is his method:—Four solutions are to be prepared. The first one of 10-grms. of nitrate of silver in 100-grms. of distilled water. The second, an aqueous solution of ammonia, standing at 13° of the areometer of Cartier. The third, a solution of 20-grms. of pure caustic soda in 500-grms. of distilled water. The fourth, into a solution of common white sugar, in 200-grms. of distilled water, there is to be poured one cubic centimetre of nitric acid at 36°. The mixed solution is then to be boiled for twenty minutes so as to produce interversion. There is then to be added 50 cubic centimetres of alcohol at 36° (Cartier?) and as much distilled water as will bring the whole volumes up to 500 cubic centimetres.

In addition to these solutions, the silvering liquid is to be prepared as follows: Into a flask holding about double the total bulk of 100 cubic centimetres, 12 cubic centimetres of the first solution (nitrate of silver), are to be poured with 8 cubic centimetres of the solution No. 2 (ammonia), and lastly 20 cubic centimetres of the solution No. 3 (caustic soda), with the addition of 60 cubic centimetres of distilled water.

If these proportions have been observed, the liquid remains perfectly limpid, and a single drop of the solution of nitrate of silver should produce a permanent precipitate in it. This solution is to be let repose for twenty-four hours, after which it is fit for use. Now as to its application. The surface of glass to be silvered must be cleaned scrupulously, and then passed over with a ball of cotton wet with a little nitric acid at 36° and finally washed with distilled water—drained from this and placed upon supports at the surface of a bath composed of the silvering liquid, as above, to which has been added from one-twelfth to one-tenth of its bulk of the interverted sugar, solution No. 4. Under the influence of diffused daylight, the surface to be silvered, immersed in the bath, is seen to become first yellow, then brown, and in about two to five minutes, according to the intensity of the chemical rays present, the silver will be found to have transferred itself uniformly over the whole surface of the glass.

In about ten minutes or a quarter of an hour, the coat will be found to have attained all the thickness desirable. The glass is then to be removed, washed by a gentle stream of common and afterwards of distilled water, and left to dry in free air upon a stand or horse.

The surface when dry presents a perfect metallic polish, covered as it were by a thin whitish veil.

By the application now of a very gentle rubbing with a chamois leather, slightly powdered with the finest rouge, this whiteness disappears, and a metallic reflecting surface is obtained of the utmost brilliancy, and whose state of metallic aggregation or "physical constitution" is such as renders it eminently suitable for the reception of optical images, and hence for instrumental uses.

So many and so diverse are the uses now to which silvered glass and porcelain may be put, both for scientific purposes and those of mere ornamentation, that it has seemed well to us to give to our readers this valuable process in complete detail.

Harbor Defense.

Mr. A. Watson of Washington, whose communication on harbor defense appeared on page 198, No. XIII., of the present volume, states that we have misapprehended his plans; that the gates oppose no area to the action of the tide, as they stand parallel with the channel, and not across it, and that the harbor is not blockaded, as the gates, chains, &c., lay flat on the bottom when lowered and do not obstruct the navigation in the least. Mr. Watson also suggests that iron be employed in place of wood for his gates, and with other modifications and explanations of his idea renders it more intelligible. The great weight of the chains and gates would require an immense force to raise them. We must defend the buoys against the statement that they will obstruct the channel five or six feet when lying on the bottom; they may be made parallelograms, or rectangular in shape, not thick, but of as large a superficial area as desired. The only reason we advocate buoys and chains is for their simplicity, cheapness, and apparent practicability; there may be cogent arguments against their adoption, but we cannot discover them, upon reflection, or from the objections as yet presented. A link of a chain made out of 3-inch round iron 5 feet long (which makes the link itself when welded about 2 feet in length) will weigh 120 pounds, calculated weight; one chain stretched across a channel 1 mile wide will therefore weigh upwards of 160 tuns, exclusive of slack or the necessary length to reach the bottom. The slack cannot be less than half the entire length, consequently 80 tuns must be added, which will bring the entire weight of one chain up to 240 tuns. In the model before us there are six chains and four gates, which of course makes 1,440 tuns for the chains. The gates we have estimated as follows: the conformation is that of a trapezoid having a base of 50 feet, a crown of 30 feet, and a neat depth (that of the channel in which it is sunk) of 30 feet. The area of this figure is 1,200 superficial feet. It is to be constructed of iron and we have allowed ¾ plate iron for the purpose. The inventor proposes 2-inch iron. A gate of the dimensions given must consist of two sides bolted or riveted together in the form of a box. The neat weight of these two sides exclusive of fastenings or end pieces is 2,400 superficial feet × by 35½ pounds; the weight of one square foot of ¾ iron, in all a little over 42½ tuns. Four such gates represent 170 tuns, without bottom pieces, sides, &c. The structure thus roughly computed will therefore weigh approximately over 2,000 tuns dead weight at the lowest. In view of this fact, and others mentioned, we do not think we are unreasonable in saying that the design is faulty and impracticable as now stated to us. Doubtless modifications may be introduced wherein this enormous weight may be compensated for, in which case there are good features in the general plan and conception.

Shaker Method of Making Soap.

As the time will soon be at hand when persons in the country will be making large quantities of sof' soap, the following method, practiced at the Shaker village, New Hampshire, may be useful to many:—

"Place a shallow iron kettle, to hold from 4 to 6 barrels, just out of the wash-room, under cover of a shed. Extend half or three-quarters inch pipe for steam to the middle of the bottom, bending it to form of surface, and terminating with open end. Take another pipe to discharge cold water over the top of the kettle. Use the best quality of 'first sorts' of potash, in the proportion of 6 pounds of potash to 7 pounds of grease, for a barrel of 40 gallons. Break up the potash into small lumps, and dissolve it in say 2 pails of hot water to 24 pounds. It dissolves rather slowly when the potash is good. When dissolved, put the solution into the kettle, add the grease quite warm, and stir the mixture together. Allow it to stand over night, if convenient. In the morning, apply a moderate jet of steam until the mixture appears ropy, or rather *soapy*. Shut off the steam and open the cold water valve, stirring the mixture, as the water runs, until the kettle is full, or the required quantity obtained for the materials used."