

observation mark in the field of vision? (1.) If the eye is at rest, the image of the object moves on the retina, and brings in play a tendency of the eye to move to follow the object. (2.) The image of the object may remain fixed in the middle of the retina, but then the eye moves really to test this fixity, and we perceive this movement of the eye. Now, in our experiment we have indeed this condition, fixity of the retina, but the muscular contraction is missing. Since we perceive really a displacement of the object when we think of a displacement of the eye, it follows then that the idea, as has been said, must be a beginning, a precursor of the motor act, a motor effort not followed by effect. The illusion may then be explained, when it is not provoked by the observer, by unconscious efforts producing themselves in the brain in a manner similar to the association of ideas. In giving this explanation, I wish it understood as a simple hypothesis.—*Comptes Rendus*, May 24, 1886. C.

CHEMISTRY.

BLEACHING ALUMINA COMPOUNDS. *Dingler's Polyt. Journal*, **263**, 164.)—Wilson's "bleaching fluid" is prepared by mixing clear solutions of sulphate of alumina and chlorinated lime—sulphate of lime is precipitated and aluminium hypochlorite remains in solution together with aluminium chloride. R. Weiss (German patent, No. 38,084, April 30, 1886) prepares alumina compounds of stronger bleaching power by causing chlorine gas to react upon aluminates, especially those of sodium, calcium and magnesium. The compounds can be obtained in liquid as well as in solid condition. In the first case, chlorine is passed into a suitably diluted solution of sodium aluminate, or into water in which calcium or magnesium aluminate is floated. In the latter case, chlorine is absorbed by layers of the dry aluminates, and the bleaching compound is obtained in a powder similar to chlorinated lime. It is claimed for these chlorinated alumina compounds, that they act within an extraordinary short time by yielding ozonized oxygen upon mere exposure, without subsequent acid-treatment, and that the fibre is much less corroded than by ordinary "bleach." O. L.

ON A GRAVIMETRIC METHOD OF ESTIMATING TANNINS. H. R. Procter (*Jour. Soc. Chem. Ind.*, **6**, 2.)—The author finds the "tan tester" of Müntz and Ramspacher, which, in various modifications, consists of a small filter press, by means of which the liquid to be tested is forced through a piece of wet rawhide, to have failed in practice, the variations by different investigators having been as high as thirty per cent.

It occurred to him that a modification of the process of Messrs. Simand and Weiss (*Dingl. Polyt. Jour.*, **260**, 564.) would approach perfection. An argand lamp-chimney has a perforated cork, covered with muslin, put in its small end and pushed down until it rests on the shoulder near the base; hide powder is then filled in until it occupies a space of about 50 c. c.; another perforated cork, covered with muslin, is pressed down on the powder. The chimney is cut off even with this second cork, and a small tube fitted into the perforation. The wide end of the tube is now dipped into distilled water

until the powder becomes moistened, when the chimney is removed, reversed and fastened in a convenient place. The apparatus now has the appearance of a small percolator, the wide end of the chimney serving the purpose of a reservoir. A strong solution of tannin is now poured in, and allowed to slowly percolate through the powder, leaving its tannin in combination. The object in dipping the larger end into distilled water first, is to moisten the powder, so that the tannin liquor, in its passage, is evenly distributed through the powder, instead of forming channels and running through uncombined. Definite volumes of the liquid are evaporated before and after passing through the hide powder, the difference giving the amount of tannin.

The most serious objection to this process is that gallic acid is likewise absorbed by the hide powder, a one per cent. solution losing seventy-eight per cent. of the total. This condemns the method for rigid scientific work when gallic acid is present, but the author hopes to overcome this difficulty by removing the gallic acid, or preventing its absorption by the hide. Glucose is also absorbed, but dextrine appears quite indifferent. Distilled water dissolves a small quantity of the hide, so that allowance must be made for that.

H. T.

THE COLORING MATTER OF THE RED AND YELLOW DAHLIA.—Roland Williams (*Journal of Society of Dyers and Colorists*, 3, 2.) The author has prepared solutions of these two varieties, by boiling the flowers in water and using the decoctions for dye testing. Wool and silk were colored without mordants, but on first mordanting with alum, or tin salt, wool, cotton and silk were all beautifully colored.

With alum, the color produced was a golden brown, the solution from the red dahlia giving the darker shade. With tin salt the red produced a cinnamon brown, and the yellow a good yellow shade. All of these shades, whether obtained from the red or yellow flowers, were "fairly fast both to light and soap."

The solutions were so sensitive to alkalies that they may be used as indicators in acidimetry, a fact which the author proved by actual experiment.

H. T.

A NEW METHOD AND APPARATUS FOR EXTRACTING DYEWOODS FOR IMMEDIATE USE IN DYEING, ETC. J. B. Wilkinson (*Journal Society of Dyers and Colorists*, 3, 18.)—The apparatus consists of the dye cistern *A*, the extractor *F*, and the cylindrical vessel *C*. From the bottom of *A* a current of water comes into *B*, through which it passes to *C*. This vessel is for the purpose of causing a current and raising the water through the pipes in *C*, from *B* to *D*. This is accomplished by having the pipes in *C* surrounded by steam. *E* is a flange, which prevents the steam getting any higher, the pipes being open at the top. The current of water rises above these, and passes forward into the vessel *F*. This vessel contains the chipped wood—logwood, fustic, etc. The water passes down pipe *G*, outside the vessel, and is delivered from underneath, entering between the bottom of the vessel and the perforated grate *H*, which sustains the dye materials. The water which