

reagent being placed in the bend of a U-tube, the limbs of which contain the other two, or in a beaker placed between two beakers containing the others, and communicating with them by means of cotton or asbestos wicks. Among the liquids mentioned, are: (A.) Solution of sulphurous acid opposed to potassium chromate and sulphuric acid solution, with sulphuric acid intermediate; this cell develops about 1.5 volt, and is constant. (B.) Sodium sulphite solution opposed to potassium permanganate rendered alkaline with potassium hydroxide. (C.) Chromium sesquioxide dissolved in sodium hydroxide, opposed to potassium bichromate and sulphuric acid solution. (D.) Potassium ferrocyanide opposed to potassium bichromate and sulphuric acid. (E.) Lead oxide dissolved in sodium hydroxide, opposed to an alkaline permanganate, hypochlorite or hypobromite.

W. H. G.

THE PREPARATION OF CHLORINE, SULPHUR DIOXIDE AND OXYGEN IN KIPP'S APPARATUS.—Clemens Winckler (*Berl. Ber.*, **20**, 184) recommends the preparation of chlorine from chlorinated lime and hydrochloric acid in Kipp's apparatus. The chlorinated lime is first mixed with about one-fourth its weight of dry plaster of Paris, and the mixture is moistened and compressed. It is then cut into small cubes, and is ready for use. The hydrochloric acid, S. G. 1.124, is diluted with an equal volume of water.

G. Neumann (*loc. cit.* 1584) finds that sulphur dioxide may be readily prepared in the same manner, the materials being strong sulphuric acid and cubes composed of a mixture of three parts calcium sulphite to one part of plaster. For the preparation of oxygen, the cubes are made of two parts barium dioxide, one part manganese dioxide and one part plaster; the liquid is hydrochloric acid, S. G. 1.12, diluted with an equal volume of water; the oxygen will contain traces of chlorine, and should be washed through alkaline hydroxide solution. The cubes of the various substances are prepared and sold by Trommsdorff of Erfurt.

W. H. G.

THE BOILING POINT OF OZONE AND THE FREEZING POINT OF ETHYLENE. K. Olszewski (*Monat. für Chem.*, **8**, 70).—Ozonized oxygen was led into a narrow tube cooled to  $-181^{\circ}4$  by boiling oxygen under ordinary pressure. The ozone then condensed to a dark blue liquid, and the tube containing it was placed in ethylene cooled by evaporation to about  $-140^{\circ}$ . It began to evaporate when the ethylene was near its boiling point, and the temperature of the ethylene when the ozone began to boil was  $-106^{\circ}$ . Liquid ozone is instantly decomposed with explosion by contact with combustible gases.

Ethylene cooled by boiling oxygen under ordinary pressure solidifies to a white, crystalline and almost transparent mass, which melts at about  $-169^{\circ}$ .

W. H. G.

THE BLUE IODIDE OF STARCH. F. Mylinus (*Berl. Ber.*, **20**, 688).—The blue color developed by the action of iodine on starch has been believed to be a simple addition product, or merely starch dyed by iodine. The author has examined the substance and determined the ratio of iodine to starch. The iodide of starch may be prepared from a clear starch solution, by the addition of a solution of iodine in potassium iodide; the blue liquid may then