

The apparatus is supported in a light wooden frame suspended by trunnions between two triangular racks.

On opening the stopcock between the burette and bottle, adjusting the cap of the bottle so that air can enter, and tilting the apparatus forward if needful, the solution flows from the bottle into the burette. The stopcock is then closed, and the bottle replaced in an upright position. The liquid can now be drawn off from the burette as required.

The reagent bottle is of similar construction, but the burette is set into the wall of the bottle, so that the apparatus can be held in the hand, and a support is not necessary.

The advantages of these forms of apparatus are that measured quantities of the reagent can be withdrawn from the bottle without recourse to measuring cylinders or pipettes, and that the risk of extraneous matter being admitted into the reagent is obviated.

E. G.

A Very Sensitive Indicator. JULIUS F. SACHER (*Chem. Zeit.*, 1910, 34, 1192).—Radish skins are extracted for a few hours with their own weight of 96% alcohol, and should the liquid show any acidity to litmus paper, it is carefully neutralised with *N*/100-potassium hydroxide. This solution, 2 c.c. of which are added to 50 c.c. of the liquid to be tested, makes an excellent indicator for both acid and alkalis, turning intensely red with the former, and green with the latter. It is more delicate than methyl-orange or phenolphthalein, but, like the latter, it is affected by carbon dioxide. L. DE K.

Rupp and Loose's Indicator. IWAN I. VON OSTROMISSENSKY and I. S. BABADSCHAN (*J. Russ. Phys. Chem. Soc.*, 1910, 42, 609—611. Compare Abstr., 1908, ii, 90).—Rupp and Loose's methyl-red is a very delicate indicator for alkali hydroxides, but the authors were unable to isolate it by the method described by Rupp and Loose. By employing the theoretical quantity of dimethylaniline, extracting the products of reaction with ether or chloroform, and evaporating the latter, the substance was isolated, but it could not be purified by recrystallisation. Z. K.

A Delicate Reaction for Hydrogen. CONSTANTIN ZENGELIS (*Zeitsch. anal. Chem.*, 1910, 49, 729—732).—The process is based on the fact that platinum and palladium absorb hydrogen, and then exercise a reducing action when heated with molybdenum solution. This is made by dissolving 1 gram of molybdenum trioxide in dilute sodium hydroxide, acidifying the liquid with hydrochloric acid, and diluting to 200 c.c.

The gas to be tested is first passed through a wash-bottle containing aqueous sodium hydroxide. The end of the delivery tube dipping into a test-tube containing a few c.c. of the reagent is tied over with platinum gauze, and if hydrogen is present in not too minute a quantity, the solution will turn blue.

A still more delicate test is to allow the gas to come in contact with spongy palladium heated at 80—120° in an atmosphere of carbon dioxide. A convenient apparatus is described for this purpose. The

palladium is then warmed with molybdenum solution to see if there is any reduction.

L. DE K.

Electrolytic Estimation of Chlorine in Hydrochloric Acid with the Use of a Silver Anode and a Mercury Cathode. JACOB S. GOLDBAUM and EDGAR F. SMITH (*J. Amer. Chem. Soc.*, 1910, 32, 1468—1471).—As a result of criticism of the electrolytic method (*Abstr.*, 1907, ii, 574, 988; 1908, ii, 1072) for the estimation of chlorine when applied to solutions containing free hydrochloric acid, the authors have made further experiments. It is shown that satisfactory results can be obtained if certain precautions are taken. Silver is deposited on the platinum gauze anode by electrolysis of a cyanide solution, and the electrode is then dipped in dilute hydrochloric acid, washed thoroughly with distilled water, and ignited to incipient redness in a Bunsen flame. By this means any admixed cyanide is completely removed.

To obviate the disturbing effect of the formation of oxide on the anode, the latter is placed for ten to fifteen minutes in an electric oven heated to 300°, when the silver oxide is completely decomposed.

Experimental data are recorded which show that the estimation of chlorine in hydrochloric acid can be effected without appreciable error if the above precautions are observed. Similar data are given for the electrolytic estimation of bromine and hydrobromic acid, but the results appear to be rather low.

H. M. D.

Catalytic Action of Silver Salts [on Chlorates in Presence of Aniline Hydrochloride]. JUAN FAGES VIRGILI (*Anal. Fis. Quim.*, 1910, 8, 222—226).—Traces of silver very much intensify the colour produced by the action of a chlorate on the solution of aniline hydrochloride employed in the author's method of estimating chlorates colorimetrically (*Abstr.*, 1909, ii, 179). It is therefore necessary if silver nitrate has been used as a means of removing other substances present (for example, ferricyanides) to ensure that any excess of silver is eliminated by the addition of sodium chloride before proceeding to estimate chlorates. The manner in which the silver acts is uncertain, but possibly it exerts a catalytic action, by which the velocity of the change producing the coloration is accelerated. The sensitiveness of the method formerly described can be much increased by adding one or two drops of a 1% solution of silver nitrate before adding the aniline reagent; in presence of silver, traces of chlorate, which ordinarily cannot be detected or estimated, give a distinct coloration. Thus 2 grams of sodium nitrate containing 0.00005 gram of chlorate usually gives a coloration only after several minutes; in presence of silver, 0.2 gram of the nitrate produces far more coloration after a few seconds. This simplifies the examination of refined nitrates containing less than 0.0001 gram of chlorate.

Traces of copper and of chloroplatinic acid exercise a similar action to silver in increasing the colour, but, unlike silver, they appear to retard its production.

W. A. D.

Weszelszky's Method for Estimating Bromine and Iodine. JOSÉ CASARES GIL (*Anal. Fis. Quim.*, 1910, 8, 33—40).—Tests made