with a blinding light. Similar energetic action takes place when the hot metal comes in contact with asbestos or with other reducible substances.

The attempts to prepare strontium were not very successful. It is quite probable that the furnace will have to be somewhat modified for this purpose and also for the isolation of barium.

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NOTES.

The Preparation of Oxygen.—The action of dilute sulphuric acid on potassium permanganate affords a satisfactory method of making oxygen in small quantities. The possibilities are well known, but do not appear to have been utilized to that end except in connection with hydrogen peroxide.

The operation consists in heating gently a mixture of potassium permanganate and an excess of dilute sulphuric acid, in a generating flask provided with safety and delivery tubes. As this mixture begins to give off oxygen freely at 50°, very little heat is needed. The evolution of gas is continuous and quiet and under easy control.

The amount of oxygen to be obtained by this reaction is approximately represented by the equation

$$2KMnO_4 + H_2SO_4 = K_2SO_4 + 2MnO_2 + H_2O + 3O.$$
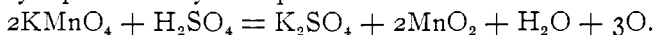
Ten grams of potassium permanganate (treated with 40-50 cc. of 1:4 sulphuric acid) give somewhat more than a liter of oxygen.

Convenient and safe, this method may be used to advantage in making oxygen for experimental purposes in courses in general chemistry. R. B. RIGGS.

Note on the Effect of Combined Carbon in Iron on the Test for Tin.—A common test for tin depends on the reducing action of stannous chloride on mercuric chloride. If iron be used to reduce the tin, it should not contain any considerable amount of combined carbon, otherwise a counterfeit test may be obtained, no tin being present.

On making blank tests, it was found that, when the iron contained as much as 0.2 per cent. of combined carbon, its hydro-

chloric acid solution gave, with mercuric chloride, a very perceptible cloudy appearance in a few seconds. Some of the iron solutions yielded heavy precipitates at once.

The unsaturated hydrocarbons, liberated by the action of the acid on the iron carbides, seem to be the cause of this precipitation, and it is, roughly estimated, proportional to their odor. This odor is moreover destroyed by an excess of mercuric chloride, and further, if the solutions be previously heated until odorless, there is no precipitation.

Whatever be the cause, the action here is one of reduction and the precipitate formed is essentially mercurous chloride. Made in quantity, it was a dense, pure white, crystalline substance. When volatilized, a slight black residue generally remained. 0.8592 gram material gave 0.27 per cent. C. The action of such reagents as ammonium and potassium hydroxide, iodine and potassium iodide left no doubt as to its essential character, and a chlorine determination gave 14.93 per cent.; theory, 15.04 per cent.

In conclusion it may be said that, if the iron gives more than a faint "hydrocarbon odor" with hydrochloric acid, its solution will give a precipitate with mercuric chloride, and so interfere with the test for tin. Common wire nails may generally be used. Although their solutions have a reducing action, it is usually very slight and requires some time to develop sufficiently to be recognized.

R. B. RIGGS AND E. S. MERRIAM.

NEW BOOKS.

THE CHEMISTRY OF PIGMENTS. BY ERNEST J. PARRY AND JOHN H. COSTE. First edition, 1903. London : Scott, Greenwood & Co. New York : D. Van Nostrand Co. 275 pages, illustrated. Price, $4.50 net.

This volume treats of the chemistry of pigments used for protective, decorative and artistic purposes. A brief introduction describes in a popular way the elements of the science of color, the spectrum and absorption spectra. In the second chapter are discussed the uses of pigments, the forms and combinations in which they are applied, and the mal-influence of air, moisture and gases on the paints. A number of tests are given that show the comparative resistance of the various paint-skins to these