Owing, however, to the decomposition of the silico-fluoride on neutralizing with alkali, the direct titration of the hydrofluosilicic acid is impracticable, and the author recommends the use of a mixture of solution of potassium chloride and alcohol. In this case, a transparent precipitate of potassium silico-fluoride is formed, an equivalent amount of hydrochloric acid being liberated, which is then estimated by titration. The details of the process consist in weighing out the fluoride in a flask, together with some powdered and ignited silica (unless a silicate is under examination), adding concentrated sulphuric acid, and heating to about 150° C. The flask is provided with a doubly-perforated cork, enclosing two tubes, one for the admission of a steady current of dry air supplied from a gasometer, the other for the escape of the evolved gas, which first passes through a small U tube (artificially cooled, and serving to retain any sulphuric acid possibly carried over), then through a larger U tube, containing the mixture of potassium chloride and alcohol, and finally through a third tube, to insure complete decomposition. After the operation has continued for about two hours, the contents of the U tube are directly titrated, an additional quantity of alcohol being added, to precipitate the potassium silico-fluoride as completely as possible. In case chlorine is also present in the mineral to be tested, the first U tube is filled with pumice, impregnated with anhydrous cupric sulphate, which retains any hydrochloric acid evolved. Each equivalent of sodic carbonate used equals 1 equivalent of hydrofluosilicic acid, or 6 of fluorine, according to the proportion:

$$\underset{106}{\text{mol. wt., }Na_2CO_3} : \underset{114}{\text{mol. wt., 6 F}} :: \text{Amt. of }Na_2CO_3 : \underset{X}{\text{Amt. of F.}}$$

Results proving the accuracy of the method are given.

Preliminary Notice of an Investigation on Petrocene, a Product of the Destructive Distillation of Petroleum, by Samuel P. Sadtler and H. G. McCarter.—In this notice, the authors direct attention to the fact, that for several months past they have been engaged in the investigation of petrocene, and claim equal right to this research with MM. Prunier and David, who, it appears, are also occupied with an examination of the same product, concerning which they have recently communicated a preliminary note to the *Comptes Rendus* (t. 87, p. 991).

Messrs. Sadtler and McCarter operate on the material described by Dr. Tweddle, in the Franklyn Institute Journal (vol. 72, p. 204). The method of forming double crystallizations with picric acid from benzole and alcohol solutions, was found to be the most serviceable for effecting the separation of the constituents of the product under examination. Upon decomposing the picric acid compounds, thus separated, they obtained at least two distinct hydrocarbons, one fusing at 280° C., the other at 178° C. The quinones of these compounds were prepared, and from the hydrocarbon fusing at 280° C., the alizarine was also obtained, analyses of which indicate that this hydrocarbon has the composition $C_{16}H_{14}$, and is a dimethyl-anthracene, although not identical with the dimethyl-anthracene of Van Dorp. The other hydrocarbon is apparently monomethyl-anthracene. The authors are at present engaged in the study of this subject, and defer further discussion thereof until the completion of the same.

On the Oxidation of Substitution Products of Aromatic Hydrocarbons, by Prof. IRA REMSEN.—The author, in a report of a former investigation on para-sulphobenzoic acid,[*] referring to the oxidation products of ortho and para-toluenesulphonic acids and sulphamides, expressed the opinion that the ortho compounds are less easily oxidized than the para compounds. His view was corroborated upon treating a mixture of the two isomeric sulphonic acids with an oxidizing agent (chromic acid), and fusing the product obtained with potassium hydrate, when salicylic acid, but no ortho-sulphobenzoic acid was formed; also, on separately treating the potassium salts of the two sulphotoluenic acids with an oxidizing agent under similar conditions; and on submitting the two toluene-sulphamides to the same process. He is led by these results to the enquiry, whether the influence of a substituting group in the ortho position is such as to prevent the conversion of the hydrocarbon residue into carboxyl, and notes the investigations of Beilstein and Kreusler[†] on the oxidation of nitroxylene (by which monobasic nitro-toluic acid is formed), as indicating that the action of the chromic acid is limited to a single methyl group; and the experiments of Vollrath,[‡] showing that para-chlorxylene behaves like the analogous nitro-derivative. The researches of Fittig, Ahrens and Mattheides [§] on bromxylene are also mentioned as affording similar results, and it is remarked that the entrance of a substituting group into xylene greatly affects its behavior towards chromic acid, one of the methyl group being protected

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[*] Amer. Jour. Sci., vol. v., 179, 274, 354. Ann. der Chem., 178, 275.

[†] Ann. der Chem., 144, 168.

[‡] Ibid, 144, 266.

[§] Ibid, 147, 32.