ANSWER TO F. SEELHEIM'S REMARKS ON MY EXPERIMENTS ON CHLORINE.

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Translated by H. ENDEMANN.

Based upon the well-known experiments of Troost and Hautefeuille, on the behavior of platinum to chlorine at high temperatures, as well as on observations of his own, F. Seelheim undertook to critically examine the experiments published by C. Meyer and myself. He assumes that in our experiments, the platinous chloride which had been employed had volatilized, and that a mixture of two volumes of chlorine and one volume of platinum gas had been the contents of our apparatus. This objection is entirely without foundation. The chlorine was brought into the apparatus in the shape of platinous chloride, packed into small, deep, pail-shaped vessels. At the end of each experiment, the contents of this vessel were always found as a compact rod of spongy platinum, fitting exactly into it, and which frequently we were able to extract from it without injury to its shape.

If care was taken that the vessel with the sponge be removed from the apparatus without loss, it was found that the weight of the platinum was almost exactly the one required by theory as existing in platinous chloride. No sublimation of platinum or formation of crystals could be observed. It is, therefore, evident that a volatilization of weighable quantities of platinum could not have taken place.

But even without taking into consideration these points of fact, this might, *a priori*, have been assumed, for if the platinous chloride be heated, the chlorine will be evolved as soon as the temperature for its decomposition is reached, and will escape from the vessel containing the platinum; and, in the latter stages of the experiment, will be hardly in contact with it.

Seelheim has evidently taken no notice of a remark at the close of our paper, wherein it is stated that iodine, at high temperatures, undergoes exactly the same changes. Iodine, of course, was applied in its free state, and not in the shape of a platinum compound. The objections of Seelheim are, therefore, in this case, inapplicable.

But if now chlorine and iodine in both cases show analogous behavior, it is hardly to be doubted that the observed facts must, in both cases, be explained as depending on the same cause.

May I be allowed yet to say a few words regarding Troost and Hautefeuille's curious discovery, which has been confirmed by Seel-

heim, that yellow-hot platinum, by an intermediate formation of platinic chloride, may partly be volatilized, though platinous chloride is completely decomposed already at a temperature below 600° C.

I have frequently repeated Troost and Hautefeuille's experiment, and have investigated it likewise with regard to the quantitative proportions, and have found that in this, as in others, where the quantity of the one or other is to be considered, time forms an important element. Of a certain quantity of platinum which, at 1570° C., was acted upon by a lively current of dry chlorine gas, but one per cent. was volatilized. From this it is evident why, in our experiments, no perceptible quantities of platinum could be volatilized. For if the volatilized quantity of platinum is, within one hour, and in a rapid current of chlorine gas, but one per cent., it is evident that, in our case, within a few seconds, when the chlorine is moreover not in motion, the volatilized quantity of platinum can hardly amount to hundredths of this one per cent.—that is, a quantity which cannot be weighed, as not more than 0.07 grm platinum was present.

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Abstracts from American and Foreign Journals.

American Chemical Journal.

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Abstractor, J. P. BATTERSHALL, PH. D.

Researches on the Complex Inorganic Acids, WOLCOTT GIBBS, M. D.—The term "complex inorganic acids," is applied to those acids which are formed by the union of two or more acids, with elimination of water, the product possessing properties like an acid containing a single radical. The author refers to the previous investigations of Laurent, Scheibler, Marignac and others, on the alkaline salts of tungstic acid, and remarks that the accurate study of these compounds presents peculiar difficulties, owing, principally, to the fact that the salts are frequently very complex in character—those of one series also often approaching those of another in composition—and that they are efflorescent, and are decomposed by boiling water. The tungstic oxide in the compounds referred to was determined by the method of Berzelius, modified as follows:

Mercurous nitrate is added in slight excess to the boiling solution of the tungstate, and mercuric oxide added until the mercurous tungstate formed assumes a persistent reddish hue; the precipitate is then strongly ignited. The water was determined by simple ignition, and the alkaline base was generally estimated as difference.