

THE AMERICAN CHEMICAL SOCIETY.

XVI.—PROCEEDINGS.

Regular Meeting, April 1, 1880.

Thirteen members present. Dr. E. R. SQUIBB in the chair.

The minutes of the previous meeting were read and approved.

In the absence of a quorum the regular business was deferred.

The following papers were read.

1. "Miscellaneous Chemical Notes," by T. T. MORRELL.
2. "On Peroxide of Hydrogen and Ozone" (second paper), by Prof. A. R. LEEDS.

After which the meeting adjourned.

ARTHUR H. ELLIOTT,

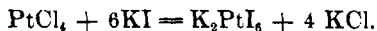
Recording Secretary.

XVII.—MISCELLANEOUS CHEMICAL NOTES.

By T. T. MORRELL.

I. ESTIMATION OF SMALL QUANTITIES OF POTASH WITH PLATINIC CHLORIDE.

When an aqueous solution of platinic chloride is mixed with potassium iodide, there is produced a peculiar red coloration of remarkable intensity, according to the reaction :



Advantage may be taken of this reaction to estimate, colorimetrically, minute quantities of platinum, providing no other substance, which produces with the iodide a colored solution, is present. If a solution of platinic chloride of known strength is kept on hand, a standard for measuring the color may be formed by mixing a measured quantity with potassium iodide.

An excess of pure iodide appears to have no effect upon the intensity of the color. However, it is best to use about the same quantity in the estimation and in the formation of the standard color, allowing five or six minutes to develop the maximum tint, after which the solutions may be suitably diluted. It is well, also, to keep the cylinders in which the comparison of color is made, stoppered, to exclude the air as much as possible.

To apply this test to the estimation of the small quantities of potash found in lime-stones, clays, etc., the double salt with platinic chloride is formed, and washed upon the filter as usual. The filter is put in a warm place, until most of the alcohol or ether, used in washing, has evaporated, when the precipitate may be dissolved in a little hot water. The solution is now cooled, and transferred to the testing cylinder, and iodide is added. If the iodide is added in crystals, it is best to agitate the liquid while it is being dissolved, to prevent the solution at the bottom of the cylinder from becoming too concentrated.

Instead of estimating colorimetrically, we may, since two equivalents of iodine would be yielded to reducing agents, titrate the solution with chloride of tin. For this purpose, a little hydrochloric acid is added, and the tin solution is run in until the red color disappears, and the solution is pale yellow. The end of the reaction is sharply defined, if the amount of the platinic salt is not too great. The addition of hydrochloric acid deepens the color, but always in proportion to the platinic salt present.

II. ESTIMATION OF COPPER AS OXIDE.

When copper has been precipitated as sulphide, it is sometimes ignited with a little flour of sulphur, in a stream of hydrogen, and weighed.

I have sometimes resorted to a shorter and equally accurate method, which I do not remember to have seen in print, viz. : that of converting the sulphide directly into oxide. For this purpose, the sulphide is removed from the filter, the filter ash added, and the whole roasted for a short time at a gentle heat. It is now very carefully heated, several times, with a little nitrate of ammonia, by which it is converted into oxide free from every trace of sulphuric acid.

If fuming nitric acid is at hand, the sulphide may be warmed with a few drops, and the resulting mixed oxide and sulphate ignited, two or three times, with a little powdered carbonate of ammonia, and weighed. This is easier of execution than the ignition with nitrate of ammonia, as the latter is apt to deflagrate, if the heat is not very carefully applied.

III. COMPOSITION OF THE GASES IN THE CAVITIES OF A BESSEMER INGOT.

In December, 1878, I made an analysis of the gases contained in the "blow-holes" of a Bessemer ingot. The ingot was "bottom cast," eight ingot moulds being simultaneously filled from a central

sprue, down which considerable air was carried along with the metal. The result of the analysis leaves little doubt that the bottom, made of red bricks and fire-clay, was not thoroughly dry. The gases were collected over water, the ingot being immersed in an iron box, with a drill passing through a packing box into its side. The boring was done as rapidly as possible. This method of collecting the gases is not free from objections, but was the best at command. The average of two closely accordant analyses was as follows :

Carbonic oxide.....	2.08
Hydrogen.....	56.42
Nitrogen	39.36
Oxygen	2.14

A few of the cavities near the surface evidently communicated with the air, hence a little free oxygen, and a larger percentage of nitrogen.

The specific gravity of the solid steel, about one foot from the top of the ingot, was 7.866.

XVIII.—ON PEROXIDE OF HYDROGEN AND OZONE.

BY ALBERT R. LEEDS, PH.D.

[Second Paper.]

(With Figures on Plate I.)

Read April 1st, 1880.

I.—UPON THE RELATIVE AMOUNTS OF PEROXIDE OF HYDROGEN AND OZONE, OBTAINED IN THE OZONATION OF AIR BY MOIST PHOSPHORUS, AS DETERMINED BY THE METHOD OF DECOMPOSITION OF THESE BODIES, THROUGH THE AGENCY OF HEAT.

In preceding articles, and more especially in the first paper with the above title, it has been pointed out that both hydrogen peroxide and ozone are formed by the action of air upon moist phosphorus. Moreover, a number of experiments, protracted for several months (in which as many as 481 liters of purified air were used in a single experiment, and every devisable precaution was employed), were brought forward in support of the proposition that *the percentage of hydrogen peroxide in the ozonised air bears a constant ratio to that of the ozone*. The conclusion drawn from these results was, that the production of hydrogen peroxide, like that of ammonium nitrate, depends upon the same series of chemical changes as those which are