

THE AMERICAN CHEMICAL SOCIETY.

VII.—PROCEEDINGS.

Meeting, February 5th, 1880.

Fourteen members present. This not being a quorum, no regular business was transacted, but Prof A. R. LEEDS read a paper (informally) upon "Peroxide of Hydrogen," and Mr. JAS. H. STEBBINS made some remarks about the action of acids upon certain coloring matters. After which, meeting adjourned.

ARTHUR H. ELLIOTT,
Recording Secretary.

VIII.—ANALYSIS OF A MINERAL RESEMBLING THORITE.

BY PETER COLLIER, PH.D.

Chemist to the Department of Agriculture, Washington, D. C.

This mineral was said to be taken from the Champlain iron region, but the exact locality is not known to the writer. In most of its physical properties it resembles thorite, or orangeite, but a carefully executed analysis showed it to differ from them in containing considerably more uranium oxide.

The following are some of its properties: *color*, dark red-brown; *lustre*, resinous, or sub-vitreous; *streak*, yellow-brown; *fracture*, sub-conchoidal; *hardness*, about 5, scratches glass with difficulty, but is easily scratched by the knife; *specific gravity*, 4.1265; *fusibility*, infusible in very fine fragments in the blow-pipe flame; *in closed tube*, gives considerable water, residue red-brown; *on charcoal*, heated alone, becomes brown, no fumes. With sodic carbonate, forms a dark grayish-brown bead. No reduced metal. *Salt of phosphorus*, on platinum wire, in both oxidizing and reducing flames, gives a yellowish color while hot, and a light green when cold. *Borax*, on platinum wire, in both oxidizing and reducing flames, gives a yellow bead while hot, and pale amber when cold. In both beads, considerable matter was undissolved.

A preliminary analysis was made, taking 1.328 grms of the finely powdered mineral, a quantity found to be too large for very accurate work, because of the difficulty of washing the bulky precipitates.

The final analysis was made, taking .5387 gram, and is believed to be correct, because each residue weighed was proven true to name, and pure. The absence of cerium, lanthanum, didymium, and zirconium, was proven. The following is a brief description of the method of analysis:

1. Decomposed with hydrochloric acid, evaporated to strict dryness, and silica separated by filtration.

2. Precipitated lead in the filtrate by sulphuretted hydrogen. The scanty, black precipitate was treated in a crucible, with nitric and sulphuric acids, thus converting the lead to sulphate, in which form it was weighed.

3. The filtrate was precipitated by ammoniac sulphide, in presence of ammoniac chloride and excess of ammoniac hydrate. After washing the black precipitate thoroughly with water containing ammoniac sulphide, it was dissolved in hydrochloric acid, evaporated until nearly free from acid, and treated with a concentrated solution of potassic sulphate. The precipitated potassic-thoric sulphate was washed with solution of potassic sulphate dissolved in boiling water, and precipitated, in the first analysis, by sodic hyposulphite, and in the second analysis, by ammoniac hydrate. After ignition, this precipitate was weighed as thoric oxide; it had a light yellowish color, not due to iron oxide.

The filtrate from potassic-thoric sulphate was precipitated black, by ammoniac sulphide and hydrate, and thus freed from excess of potassic sulphate. After solution of the precipitate in hydrochloric acid, the iron and aluminium oxides were precipitated as basic acetates, and separated from each other in the wet way by potassic hydrate.

The filtrate from the basic acetates was precipitated by ammoniac sulphide and hydrate, thus getting rid of the sodic acetate, which prevents complete precipitation of uranium as hydrate.

The black uranium sulphide was dissolved in hydrochloric acid, and precipitated as hydrate by ammoniac hydrate. After ignition, in a covered crucible, the precipitate was weighed as uranoso-uranic oxide (U_3O_4), from which was calculated the amount of uranic oxide (U_3O_8). This residue was entirely free from iron and manganese oxides.

4. Lime, magnesia, and alkalis, were determined in the usual manner.

In view of the homogeneous structure of this mineral, its similarity to thorite, and its marked excess of one important constituent (uranium), the name "URANO-THORITE," is suggested as appropriate.

The analyses were made by one of my assistants, Mr. Henry B. Parsons.

ANALYSES OF URANO-THORITE.

	PRELIMINARY.	FINAL.
Moisture and combined water.....		11.31
Silica, SiO_2	19.43	19.38
Thoric oxide, ThO	52.51	52.07
Lead oxide, PbO40	.40*
Aluminic oxide, Al_2O_333
Ferric oxide, Fe_2O_3		4.01
Uranic oxide, U_3O_8		9.96
Calcic oxide, CaO		2.34
Magnesian oxide, MgO04
Sodic oxide, Na_2O11
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		99.95

April 15th, 1880.

IX.—DEVELOPMENT OF SUGAR IN THE SORGHUMS.

BY PETER COLLIER, PH.D.

During the season of 1879, a series of examinations were conducted upon four varieties of sorghum, for the purpose of learning more about the development of sugar in these plants, and, if possible, of reconciling the conflicting testimony, which has accumulated during the past twenty-five years, since their first introduction into this country.

The results obtained are prospectively of such immense practical importance, that apart from their scientific bearings, it seems that none can but feel a lively interest in them.

The four varieties of sorghum experimented upon, were known as the Early Amber, the White Liberian or Goose-neck, the Chinese or Sumac, and the Honduras or Mastodon.

The seed was planted in the grounds of the Department of Agriculture, at Washington, D. C., on or about the 15th of May, and the culture was in all respects like that of Indian corn.

When the flower head first appeared, the examinations began, and these examinations were continued at intervals of from 5 to 7 days during the season.

For each examination, two or three stalks of each variety were selected, their development, length, weight, &c., noted down. After

* From preliminary analysis.