SOCIETIES AND ACADEMIES

THE GEOLOGICAL SOCIETY OF WASHINGTON

AT the 232d meeting of the society, held at the George Washington University on Wednesday evening, April 27, 1910, Mr. David White exhibited specimens of coal from Upper Cretaceous near Newcastle, Colo., as illustrating a coal undergoing rapid devolatilization. The coal contains large quantities of occluded gas which is easily detected by the odor of hydrogen sulphide. The hand specimens exhibited continued for a long time to give off the gas after being broken open and crushed, although they had since collection been exposed to the air for nearly twenty months.

Regular Program

The Sulphides of Iron and their Relations to One Another: E. T. ALLEN and JOHN JOHNSTON. (Delivered by Mr. Allen.) Crystallographic study by Esper S. Larsen.

1. Pyrrhotite was formed: (1) by the slow precipitation of ferrous chloride by the vapors of ammonium sulphide, (2) by the direct union of iron and sulphur, (3) by the decomposition of pyrite. The dissociation of pyrite into pyrrhotite and sulphur becomes noticeable at about 500°, and at 700° the vapor pressure probably reaches one atmosphere. The reaction is reversible. The pyrrhotite melts at about 1200°. Cooled in nitrogen, the product seems to have the composition FeS; cooled in H_2S, it absorbs sulphur. Pyrrhotite appears to be a solid solution of sulphur in FeS. In support of this view, measurable crystals made in the wet were found to have almost the composition FeS. Other lines of evidence are being followed.

2. Pyrite and marcasite were formed by the reduction of ferrous sulphate by hydrogen sulphide between 200° and 300°. The pyrite forms in cubes modified by the octahedron; the marcasite crystals agree closely with the natural mineral ($a:b:c = 0.7660:1:1.220$). The two disulphides are generally obtained together; the conditions giving rise to each are as yet undetermined. Marcasite is an unstable form passing into pyrite. In the dry way the change proceeds slowly at 450° without any loss of sulphur. Although the presence of a solvent might be expected to exert a favorable influence on this transformation, no change was observed at 350° in the presence of aqueous sulphuric acid after several days. If the mineral is heated rapidly, considerable evolution of heat is observed between 500° and 600°. At this higher temperature a little sulphur is lost and some pyrrhotite formed. Natural marcasite does not change into the denser pyrite when compressed at ordinary temperatures at 10,000 atmospheres. The change of marcasite to pyrite was followed by Stokes's method (Bull. U. S. Geological Survey, 186). The investigation is still in progress.

A Sketch of the Geologic History of the Floridian Plateau: T. WAYLAND VAUGHAN.

A brief description was given of the present submarine and subaerial topography of the Floridian Plateau and of the marine deposits now forming in shallow water. The ocean currents, winds, tides, were described, followed by a discussion of the principal shore features and drainage lines and a description of the geologic formations and history. The Floridian Plateau was shown to have existed since early Oligocene times and to owe its development to gentle folding due to compression from east and west, combined with the usual presence of marine and subaerial erosion and deposition. The rôle of corals as constructional agents was shown to be relatively unimportant at the present time and of still smaller importance in the past. The plateau has undergone repeated elevation and depression since Oligocene times, the net result being a gradual extension to the east and to the south. At present the entire western half of the plateau is submerged.

EDSON S. BASTIN,
Secretary

THE AMERICAN CHEMICAL SOCIETY
NEW YORK SECTION

THE ninth regular meeting of the session of 1909–10 was held at the Chemists' Club on Friday, June 10.

The annual report of the secretary showed an increase in membership of the section of 93, giving a total of 773 members.

The following papers were presented:

Chas. Baskerville and W. A. Hamor: "The Examination of Ethyl Ether."

H. C. Sherman, E. C. Kendall and E. D. Clark: "An Examination of Present Methods of Determining Diastatic Power."

E. C. Kendall and H. C. Sherman: "A Study of the Action of Pancreatic Amylase."

F. J. Pond: "A Case of Iron Corrosion."

Arthur E. Hill: "A Note on the Constancy of the Solubility Product."

C. M. JOYCE,
Secretary