graphic microscope, characterized it as an optical machine. He described the preparation of the slide by which minerals are studied under the microscope, and explained a number of rock section slides illustrating the characters by which minerals are distinguished both in plain light and with polarized light effects.

At the close of his address a vote of thanks was tendered to Mr. Clendenin for his highly illuminating paper. Dr. Kunz spoke briefly on the recent deaths of the two eminent mineral collectors, Norman Spang and Clarence S. Bement. The meeting then adjourned.

HERBERT P. WHITLOCK, *Recording Secretary*

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences, April 12, 1923

A stated meeting of the Philadelphia Mineralogical Society was held on the above date with the president, Mr. Vaux, in the chair. Twenty-two members and two visitors were present.

Upon favorable recommendation of the council, Messrs. Andrew Mantz and Frank K. Pickel were elected to active membership.

Mr. Horace Blank addressed the society on "*The Constitution of Complex Minerals*," or those that are compounds of higher order, composed of two or more saturated compounds. The history of the theories of valence was reviewed, in particular the dualistic theory of Berzelius; followed by a detailed account of Werner's coördinate extension of the notions of valence, with the ideas of primary and secondary valence. Coördinate formulas of many substances were presented, and it was shown how the salts of hetero-polyacids and iso-polyacids might be explained on this basis.

Mr. Oldach reported on the trip to Perkiomenville on March 25th, participated in by Messrs. Hallowell, Hilbiber, Tallis, Clay, Trudell, Knabe, Broadbelt, and himself. Considerable stilbite was obtained.

SAMUEL G. GORDON, *Secretary*

BOOK REVIEWS

HANDBOOK AND DESCRIPTIVE CATALOGUE OF THE COLLECTIONS OF GEMS AND PRECIOUS STONES IN THE UNITED STATES NATIONAL MUSEUM. GEORGE P. MERRILL, assisted by MARGARET W. MOODEY and EDGAR T. WHERRY. *Bull. U. S. Nat. Museum*, 118, 1922.

This handbook is a new edition, largely rewritten, of a descriptive catalogue of the gem collections in the National Museum, published in 1902. Preceding the catalogue proper are short chapters on the history and arrangement of the collections, and on names, physical and chemical properties of precious stones.

In the catalogue of the gem collections, the gem minerals are arranged alphabetically. Each is briefly described giving physical properties, composition, occurrence, and miscellaneous information of interest. The individual specimens are then listed and rather fully described; name, locality, cut, color, weight, measurements, and number being given.

Following this are the catalogues of related collections; rough and cut stones, imitation stones, synthetic stones, models of cuts, ornamental objects not used for

personal adornment, and the collection illustrating the occurrence and association of gems (miscellaneous series, South African diamond-bearing rocks, pegmatites of the Appalachian region and of Mesa Grande, Calif.).

Appendices include: the cutting of gem stones; gems mentioned in the Bible; mystical properties of gems; lists of gem and mineral names; industrial uses of precious stones; tables for the identification of gems by their physical and optical properties; statistics of production, 1913-1918; and a selected bibliography on gems. A number of plates show photographs of gem mines in this country. There are two colored plates of gems, as well as a number of text figures.

While primarily a catalogue, much of the information contained in this handbook is of general interest to mineralogists, as well as the laity. The remarks on cause of color and absorption spectra of gems, and the determinative tables for gems, may be mentioned in this connection. EDW. F. HOLDEN

ANNUAL TABLES OF CONSTANTS AND NUMERICAL DATA. Vol. IV, part I, XXXII+626 pages, *1921;* part II, XXXVII+751 pages (pp. 627-1377), *1922.* Gauthier-Villars et Cie (*Paris*); The Cambridge University Press (*Cambridge*); University of Chicago Press (*Chicago*). Net $13.25 each; postpaid $13.57.

The publication of the Annual Tables of Constants and Numerical Data, interrupted by the World's War, has again been resumed so that the two volumes recently published mark the first appearance of this exceedingly valuable reference work since 1914. The two volumes, comprising 1377 pages, contain practically all the numerical data published during the period 1913 to 1916 inclusive, as revealed by a digest of 341 periodicals. In a monumental undertaking of such proportions some omissions are inevitable, nevertheless, the accomplishment deserves the unstinted praise of all scientists. (The reviewer has looked in vain for any reference to THE AMERICAN MINERALOGIST in the list of periodicals reviewed, altho this Journal was established in 1916.)

While the treatment accorded Metallurgy and Engineering is unusually exhaustive, the mineralogist and crystallographer will be especially interested in the 65 pages of volume II, (pp. 1026-1901), devoted to the following subjects: optical constants and analyses of minerals (arranged alphabetically); new forms of minerals; crystallography of inorganic and organic substances; fusibility of minerals; variation of crystal angles with temperature and structure of crystals. W. F. H.

NOTES AND NEWS

APATITE CRYSTAL-CAVITIES. EDGAR T. WHERRY, *Washington, D. C.*—The District of Columbia and its immediate vicinity is such poor territory from the standpoint of the mineral collector that announcement of even a negative mineral occurrence may be worth while. In the vicinity of Chevy Chase, which lies along the northwest boundary, partly in the district and partly in Montgomery County, Maryland, several minerals can be found loose in the soil. Most abundant and conspicuous is vein quartz, in masses up to several meters in diameter. Irregular cavities in this occasionally contain quartz crystals, both colorless and somewhat smoky, up to 10 cm. in length; and the micaceous margins of the quartz veins often show 1 to 2 cm. cubes of limonite pseudomorphous after pyrite. Both quartz and pyrite crystals commonly weather out, and are to be picked up in road gutters and rain gullies in the fields.