BOOK REVIEWS

DANA'S *MINERALS AND HOW TO STUDY THEM*. Third Edition by CORNELIUS S. HURLBUT, JR.

With the publication of the completely revised and largely rewritten third edition of Dana's *Minerals and How to Study Them* by Cornelius S. Hurlbut, Jr., three of the four "Dana family" mineralogical books now have been completed or partly completed in modern versions. Volume I of the Dana *System of Mineralogy*, 7th edition, by Charles Palache, the late Harry Berman, and Clifford Frondel has partly fulfilled the long felt need for a complete compilation of mineralogical data. It is to be hoped that volume II of this encyclopedic work will not be inordinately delayed. Dana's *Manual of Mineralogy*, 15th edition, also revised by Professor Hurlbut, has shown itself to be an excellent textbook for students of elementary mineralogy. *Minerals and How to Study Them* is a sound initial rung on the ladder leading to mineralogical training and experience; it is advertised as "A book for beginners in mineralogy." It is to be regretted that there has appeared no modern counterpart of Dana's *A Textbook of Mineralogy*, the 4th and last edition of which was revised by the late Professor Ford in 1932. This volume, on an advanced mineralogical level, is now outdated, but deserves the renovating treatment accorded the other three "Danas."

Minerals and How to Study Them contains the original eight subdivisions of the first edition of 1895. Their titles have been slightly modified and their contents have been completely transformed on the basis of modern mineralogy. The introductory statement, "Minerals and Mineralogy," is followed by a short chapter outlining the fundamentals of mineral collecting and study. A long section on "Crystals and Crystal Habits" broaches the nature of crystals, the crystalline state, and crystal symmetry. Included here are descriptions of the six crystal systems and their principal forms. Other topics treated under this heading include the simple measurement of crystal angles, crystal irregularities, crystal aggregations, and an interesting and valuable summary on growing artificial crystals.

Chapter four describes the physical properties of minerals and chapter five their chemical properties. Blowpipe and elementary chemical methods of identification are next discussed, but, as the preface indicates, this chapter has been considerably shortened. Its contents and organization are adequate in view of the declining emphasis afforded these determinative devices. Descriptions of individual minerals appear in chapter seven. About 150 species are described in some detail and many others are mentioned. Individual descriptions follow the standard headings: habit, physical properties, composition, and occurrence. The selection of only 150 representative species is, of course, a very difficult task, and the choices of the older editions have been retained in large part. Some omissions, however, are notable, as for example, aegirine and columbite. Surely these are more important to the beginning student and are more likely to be encountered by the apprentice collector than are native antimony and native arsenic. Although the terms limonite and bauxite have been retained, the analogous name wad, a useful designation for mixtures of manganese oxides unidentifiable by elementary means, is not mentioned. As usual a description of ice as a mineral is included. The arrangement of the species follows that of the new "Dana System," in a general way and is described as a chemical classification. Quartz, however, is placed at the head of the silicate group, so that the classification is in part, at least, chemical-structural.

The book concludes with a section on mineral determination and a group of very valuable determinative tables based initially on luster and subdivided first on hardness, then on cleavage. Appendix I contains a list of common minerals grouped under their most important elements and Appendix II lists the most important minerals for a small collection. The index is complete and useful. The volume contains 323 pages and 387 figures.

The crystal drawings are uniformly excellent, as are many of the other line drawings and engravings, some of which have been retained from the first edition. Several sketches of minerals by Lougee are outstanding, and two handsome color plates grace the frontispiece. The other photographs show a considerable range in quality. Most are adequate to very good but a few fail to reveal significant mineralogical features or are lackluster, for example, that of heulandite (Fig. 332), asbestos (Fig. 338), and hemimorphite (Fig. 363).

The book is well printed; the paper is excellent; and typographical errors appear to be at a minimum. Professor Hurlbut's careful and competent revision has undoubtedly produced a high quality book that will be of unusual interest and of outstanding value to the mineralogical novice, either amateur or future professional. *Minerals and How to Study Them* is published by John Wiley & Sons, Inc. and is priced at $3.90.

E. Wm. Heinrich

GESCHICHTE DES GOLDES, by Heinrich Quiring.

Professor Heinrich Quiring, Director of the Geological and Mineralogical Institute of the Technical University of Berlin, has compiled an interesting and detailed account of the "History of Gold." The paper bound volume of 318 pages is published by the Ferdinand Enke Verlag of Stuttgart and is priced at 34 German marks. In the introduction the work attempts to relate the development of cultures to their gold supply. In the author's opinion, an ample supply of gold has hastened the development of certain civilizations and has stimulated their growth; whereas inadequate or meager quantities of the golden metal accompany a declining culture or act as drags on its formation. This brief theoretical argument attempts but inadequately, it seems, to answer the well known query, "Which came first—the hen or the egg?" Certainly vigorous civilizations sought an ample gold supply which in turn was used to promote further expansion. As the author opportunely quotes, "Hunger *nach* Gold endeckte die Welt" (italics the reviewer's).

The following four sections trace the history of gold through the Bronze Age, the Iron Age and the Roman emperor period, the Middle Ages, and the Modern Age (since 1493). Each period is subdivided on a geographical basis. The book is a veritable encyclopedia of "golden" facts, and anyone interested in history, archaeology, gold mining, or historical mineralogy will profit by reading it. From random pannings we glean such diversified colors as: the Egyptian king Tutanchamon (1357–1351 B.C.) was buried in a casket of gold weighing 110 kg.; rings used in Bremen, Germany, in the late bronze age were made of Irish gold; in late Babylonian times the ratio value of gold to silver was from 8.5:1 to 14:1; the first important discovery of gold tellurides was at Nagyág, Hungary; in 1758 the export of platinum from Colombia was forbidden because it was used to adulterate gold coinage; and in 1941 Colorado produced 11,700 kg. of gold, only 5% of which came from placer deposits.

E. Wm. Heinrich

Part II of *Die Entwicklung der Chemischen Elemente* by N. Efremov has been published recently in German by Ihor Belej of Munich 17, Germany. A second edition of Part I of the same work, which was reviewed in *The American Mineralogist*, **32**, 699–700, 1947, also has been issued. Part II contains "sketches on geochemistry from the viewpoint of transformation in atomic nuclei," and touches on such matters as mineral paragenesis, age relations among various rock types, explosion pipes, desilicated pegmatites, origin of gabbro-anorthosite-charnockite complexes, and quartz-carbonate rocks in serpentine. Like its predecessor, it is a theoretical attempt to explain mineral transformations in terms of atomic transmutations rather than as chemical (i.e., extranuclear) reactions.

The American Petroleum Institute of Dallas, Texas, has published Preliminary Report No. 1, *Glossary of Clay Mineral Names* by Paul F. Kerr and P. K. Hamilton of Columbia University. This useful compilation gives definitions, brief descriptions, histories, and main references to 246 minerals and mineral substances belonging to the clay group and to closely allied groups.

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NEW MINERAL NAMES

Koktaite

Josef Sekanina, Koktaite, a new mineral of the syngenite group: *Acta Acad. Sci. Nat. Moravo-Silesiacae* **20,** No. 1, 26 pp. (1948) (Czech with French summary); through *Mineralog. Abs.*, **10,** 352 (1948). Pseudomorphs after gypsum were found, associated with gypsum, mascagnite, and ammonium alum in a lignite mine at Zeravice near Kyjov, southeast Moravia. *X*-ray photographs are similar to that of syngenite. The optical data agree with those determined on artificial ammonium syngenite, $(NH_4)_2Ca(SO_4)_2 \cdot H_2O$. The crystals are monoclinic, acicular, with the forms: {100}, {110}, {001}, {011}, and {101}, no cleavage, twins on {100} frequent. Optically biaxial, neg., $\alpha = 1.524$, $\beta = 1.532$, $\gamma = 1.536$, 2V 72°. Sp. gr. 2.09. Decomposed by water with precipitation of gypsum. Origin of name is not stated in abstract; perhaps named for J. Kokta, who analyzed the artificial salt.

Michael Fleischer

Dervillite

R. Weil, La dervillite, espece minerale nouvelle:

Rev. sci. nat. Auvergne, Clermont-Ferrand, **7,** 110–111 (1941); through *Mineralog. Abs.*, **10,** 353–354 (1948).

"Small (0.3 mm.) crystals found in a cavity in native arsenic from Gabe Gottes mine, Sainte-Marie-aux-Mines, Haute-Rhin (=Markirch, Alsace) are brownish-black with metallic luster, black streak, low hardness, very brittle, and show at least one direction of cleavage. They are soluble in HNO_3 ,and contain Sb, Pb, perhaps also Bi, and little sulfur. A crystal measured by H. Ungemach, monoclinic, $a:b:c = 1.0691:1:1.4853$, with 8 forms, has been lost, and no more material has been found. The *x*-ray powder pattern is distinct from that of lautite and other minerals from the locality."

Discussion: It is regrettable that the literature should be burdened with a name for such incompletely described material.

M. F.

Varlamoffite

H. Buttgenbach, Les mineraux de Belgique et du Congo Belge 1947, pp. 182–183; from unpublished work by DeDycker.

Name given to a yellow, earthy, porous mass of density 2.52 to 2.61 and supposedly H_2SnO_3. The average of three analyses by Mlle. Gastellrei gave H_2SnO_3 59.22, SnO_2 25.55, SiC_2 1.68, Fe_2O_3 9.45, Al_2O_3 2.22, H_2O 2.12; sum 100.24%. Occurs in tin-bearing veins of Kalima and other regions of Mamiema, Belgian Congo.

Discussion: Compare the similar souxite (*Am. Mineral.*, **32,** 372, 1947).

M. F.