

The following specimens were exhibited—By Mr. Biernbaum: oligoclase, from Lafayette on the Schuylkill, and green albite from Ward's quarry; Mr. Trudell: pyrite, chalcopyrite, magnetite, aragonite, and byssolite from Cornwall.

SAMUEL G. GORDON, *Secretary*.

REVIEWS AND ABSTRACTS

EDGAR T. WHERRY

In this department it is proposed to include references to all new books and journal articles on subjects of interest to mineral collectors. New species and varieties of minerals will be listed and fully described and their classification discussed. The editor will be glad to receive at all times suggestions, criticisms, and information concerning omissions or errors in this department. Everything published since January 1, 1916, will be included.

The form of reference will be as follows: Title, author, journal (abbreviated according to the list in *Chemical Abstracts*, 9, 24, iii-xix 1915.), volume (in bold face type), number, pages, and date. In certain cases abstracts will be taken bodily from *Chemical Abstracts*, Mr. E. J. Crane, editor of that journal, having kindly given us permission to do so; these will be so marked.

SOME NEW MINERAL OCCURRENCES FROM THE TINTIC DISTRICT, UTAH. A. H. MEANS, *Am. J. Sci.* 41, 1, 125-130, 1916.

Comprises descriptions of geocronite(?), adamite, daubreeite(?), bismite(?), jarosite, and a new species, *arsenobismite*. The properties of the last are: color, yellowish-green with a tinge of brown, luster resinous, structure cryptocrystalline, hardness 3, specific gravity 5.70, refractive index 1.60; in composition, a rather impure basic bismuth arsenate, with the formula $2\text{Bi}_2\text{O}_3 \cdot \text{As}_2\text{O}_5 \cdot 2\frac{1}{2}\text{H}_2\text{O}$. [Probably $(\text{BiOH})''(\text{BiO}_2\text{H}_2)'(\text{AsO}_4)''$. Ed.]

[In the crystallo-chemical classification arsenobismite evidently belongs in a group (not named by Dana) which includes the minerals augelite $(\text{AlOH})(\text{AlO}_2\text{H}_2)(\text{PO}_4)$ and dufrenite $(\text{FeOH})(\text{FeO}_2\text{H}_2)(\text{PO}_4)$. From the genetic viewpoint it is probably to be classed with minerals of metamorphosed hydrothermal deposits, evidently resulting from the interaction of an excess of bismuth with arsenic solutions, under oxidizing conditions. Ed.]

THE ORIGIN OF PETROLEUM AND ASPHALT.
CLIFFORD RICHARDSON, *J. Ind. Eng. Chem.* **8**, 1, 4, 1916.

R. briefly reviews the results of his studies on the origin of the famous Trinidad asphalt, which showed "that the heavy petroleum rising from the oil sands thru a paste of colloidal clay and water was emulsified therewith by the violent action of escaping natural gas and that this emulsion of oil and colloidal material was converted, after reaching the surface, into solid asphalt." He then suggests that just as asphalt has been produced by surface action between liquid petroleum and solid colloidal material, so also has the petroleum itself been produced by a similar surface action between a natural gas and the sands or clays with which it has come in contact. Differences in the original gas and the condensing materials will account for all observed variations in the character of natural petroleum. The ultimate origin of the natural gas is not discussed.

INTUMESCENT KAOLINITE. W. T. SCHALLER and R. K. BAILEY, of the U. S. Geological Survey, *J. Wash. Acad. Sci.*, **6**, 3, 67-68, 1916.

(Abstract reprinted by permission from *Chemical Abstracts*, **10**, 6, 733, 1916)

A white minutely crystalline mineral from Back Bone Mountain, LeFlore Co., Okla., has proved on examination to be kaolinite, altho it differs from previously described occurrences of this mineral in intumescing strongly before the blowpipe. Its indices of refraction are $\alpha = 1.561$, $\beta = 1.563$, $\gamma = 1.567$, and agree with the values given by certain authors for this species; the mean value $n = 1.54$ given in some books is regarded as too low [for crystalline material, though not for amorphous. Ed.]. Analysis by B. gave SiO_2 46.55, Al_2O_3 38.90, H_2O 14.04, sum 99.49%, agreeing closely with the theory for the mineral. The H_2O was found to behave normally, only traces escaping below 330° .

NOTE ON THE VARIABLE COMPOSITION OF MEL-
ANOCHALCITE. W. F. HUNT and E. H. KRAUS, of the Univ.
of Michigan, *Am. J. Sci.* **41**, 2, 211-214, 1916.

This supposed mineral species, first described by Koenig in 1902, has been regarded as a basic cupric ortho-silico-carbonate. H. and K. show by microscopic examination that the material

is a mixture, and from the original analysis and a new one made by H. prove it to consist of variable quantities of tenorite, chrysocola, and malachite. [Material obtainable from Ward's Natural Science Establishment.]

OBSERVATIONS ON CERTAIN TYPES OF CHALCO-CITE AND THEIR CHARACTERISTIC ETCH PATTERNS. C. F. TOLMAN, JR., *Bull. Am. Inst. Mining Eng.* **1916**, 401-433

This consists of a discussion of the genesis of chalcocite, illustrated by numerous photomicrographs.

A PECULIAR INTERGROWTH OF PHOSPHATE AND SILICATE MINERALS. EDGAR T. WHERRY, *J. Wash. Acad. Sci.* **6**, 5, 105-108, 1916.

(Abstract by L. W. Riggs, reprinted by permission from *Chemical Abstracts* **10**, 9, 1148-1149, 1916)

A green and white substance associated with variscite in fissure veins in metamorphosed slate near Manhattan, Nevada, consists of a green glassy mass, traversed by numerous sub-parallel wavy white lamellas, varying from 1 to less than 0.05 mm. in thickness. Both minerals are amorphous, showing only traces of doubly refracting material. Analysis by J. E. Whitfield of as pure a specimen of the green mineral as could be obtained by hand picking, but containing submicroscopic white lamellas, gave: CaO 6.30, CuO 1.25, MgO 0.80, Al₂O₃ 25.90, Fe₂O₃ 2.14, P₂O₅ 24.76, SiO₂ 7.32, H₂O below 100° 21.90, above 100° 9.20, sum 99.57%. A small sample of the white lamellas containing perhaps $\frac{1}{4}$ of its weight of green material was analyzed by E. T. W. with the following results CaO+CuO 9.0, Al₂O₃+Fe₂O₃ 23.3, MgO 0.5, P₂O₅ 12.1, SiO₂ 30.0, H₂O below 100° 10.4, above 100° 14.8, sum 100.1%. On comparison with the known aluminium phosphate minerals the former was found to resemble vashegyite most closely, and is probably an impure form of that species. The white mineral is a zeolite related to laubanite, but amorphous. The material studied is thus regarded as a colloidal vashegyite traversed by rhythmically precipitated laminae of a calcium-aluminium silicate of probably zeolitic nature.

[NOTE.—This material was discovered by Mr. Percy Train, of Manhattan, Nevada, who can probably furnish specimens to collectors.]