ABSTRACTS—CRYSTALLOGRAPHY

THE APPROXIMATION OF REFRACTIVE INDICES. R. PANEBIANCO. *Riv. min. crist. Ital.*, **47**, 3–9, 1916.

It is shown mathematically (in Esperanto), that figures beyond the third decimal place are without significance. E. T. W.

DISCUSSION OF TOPIC AXES AND OF A NEW CHEMICAL THEORY OF IGNEOUS ROCKS. R. PANEBIANCO. *Riv. min. crist. Ital.*, **47**, 9–21, 1916.

It is shown (in Esperanto) that the numerical coincidences which frequently occur in the study of topic axes are of far less significance than certain writers have supposed. E. T. W.

CRYSTALLOGRAPHIC STUDIES OF THE NICKEL AND MAGNESIUM TETRATHIONATE OCTOHYDRATES WITH HEXAMETHYLENETETRAMINE. C. PERRIER. *Riv. min. crist. Ital.*, **47**, 22–30, 1916.

These salts have the formula-type $RS_4O_6.8H_2O.2C_6N_4H_{12}$, with R = Mg or Ni. They are monoclinic, with the following ratios: Ni-salt, $a : b : c = 0.8541 : 1 : 0.6668$; $\beta = 97° 21\frac{1}{2}'$: forms (010), (110), (210), (101), $(\bar{1}01)$ and $(\bar{1}21)$. Mg-salt, $a : b : c = 0.8512 : 1 : 0.6755$; $\beta = 97° 26'$; forms (010), (110), (101), and $(\bar{1}21)$. The densities and molecular volumes of the Ni and Mg salts are respectively: 1.608, 455.03; and 1.519, 459.08. A close isomorphism is thus shown between Ni and Mg, both in crystallization and molecular volume; the same relation has been observed in a number of sulfates and selenates of these metals. E. T. W.

CRYSTALLOGRAPHIC STUDIES OF LITHIUM MERCURIC HALIDES WITH HEXAMETHYLENETETRAMINE. E. QUERCIGH. *Riv. min. crist. Ital.*, **47**, 30–39, 1916.

These salts have the formula type $2LiR.HgR_2.8H_2O.2C_6N_4H_{12}$, with R = Cl, Br, or I. Their crystallographic features are as follows: Chloride, monoclinic, with $a : b : c = 0.7130 : 1 : 0.7682$; $\beta = 79° 42'$; forms (100), (010), (001), (110), (011), and $(\bar{1}21)$. Bromide, triclinic, with $a : b : c = 0.5627 : 1 : -$; $\alpha = 123° 30'$, $\beta = 94° 01'$, $\gamma = 88° 58'$; forms (100), (010), (001), (110), and $(2\bar{1}0)$. Iodide, rhombic, with $a : b : c = 0.6917 : 1 : 0.7336$; forms (100), (010), (001), (101), (110), and (011). In spite of the difference in system, these compounds are isomorphous to some extent, as brought out by comparisons of angles between certain forms. E. T. W.

THE SPECTRAL PHOTOELECTRIC SENSITIVITY OF MOLYBDENITE. W. W. COBLENTZ, M. B. LONG, AND H. KAHLER. *Phys. Rev.*, **11**, 497, 1918.

The presence of maxima of sensitivity is noted and the influence of temperature upon them is described. Molybdenite from different localities varies greatly in sensitiveness. E.T.W.

SOME OPTICAL AND PHOTOELECTRICAL PROPERTIES OF MOLYBDENITE. W. W. COBLENTZ and H. KAHLER. *U. S. Bur. Standards Sci. Paper* **338**, 1919.

Data are given of the transmissivity and reflectivity of molybdenite, and its change in electrical conductivity when exposed to thermal radiations of wave lengths extending from ultra-violet to extreme infra-red. S. G. G.

CRYSTALS FOR SOUND AMPLIFICATION. A. McL. NICOLSON. *Elec. Rev.*, **74**, 954, 1919.

PIEZO-ELECTRICITY AND ITS TECHNICAL APPLICATION. J. S. G. THOMAS. *J. Soc. Chem. Ind.*, **38** (9), 159–160 R, 1919.

PIEZOELECTRICITY AND ITS APPLICATIONS. J. J. THOMSON. *Engineering*, **107**, 543–544, 1919.

Discussions of the use of crystals without centers of symmetry, especially rochelle salt, quartz, and tourmaline, for generating electric currents when exposed to sound or other vibrations. E.T.W.

ABSTRACTS—MINERALOGY.

CHIEF MINERALS OF THE SUDBURY NICKEL ORES. ARTHUR P. COLEMAN. *Canadian Mining J.*, **37** (16), 386–389, 1916.

The nickel-bearing minerals found are pyrrhotite, pentlandite, polydymite, gersdorffite, millerite, and niccolite. The nickel content of the pyrrhotite is due to finely disseminated pentlandite. Chalcopyrite is an abundant associate. L. S. RAMSDELL, W. F. HUNT.

PYROPHYLLITIZATION, PINITIZATION, AND SILICIFICATION OF ROCKS AROUND CONCEPTION BAY, NEWFOUNDLAND. A. F. BUDDINGTON. *Jour. Geol.*, **24**, 130–152, 1916.

The formation of pyrophyllite, pyrite and other minerals in rhyolite by the metasomatic action of circulating waters from an intrusive granite batholith is described. L. S. R., W. F. H.

OCCURRENCE, GEOLOGY, AND ECONOMIC VALUE OF THE PITCHBLENDE DEPOSITS OF GILPIN COUNTY, COLORADO. PERCY R. ALSDORF. *Econ. Geology*, **11**, 266–275, 1916.

Comprises a brief discussion of the uses and properties of radium; descriptions of the mode of occurrence of the pitchblende, together with gold and silver sulfides. L. S. R., W. F. H.

THE PYROXENE WHICH FORMS AN INTERMEDIATE LAYER BETWEEN THE NEPHELINE AND THE MICA IN THE GEODES OF THE LIMESTONE OF MONTE SOMMA. G. CÉSARO. *Riv. min. crist. Ital.*, **47**, 78–85, 1916; abstr. reprinted by permission from C.A. **13** (17), 1991–1992, 1919.

The crystallographic and optical properties of this pyroxene are given, and it is shown to be an iron-bearing diopside related to hedenbergite. Similar data are also given on another pyroxene and a vesuvianite crystal with unusual birefringence. The minerals in the residue obtained on treating the limestone with acid are described, one being pleonaste and another a pyroxene with interesting optical properties. E. T. W.

A SERIES OF TREATISES ON THE RARE METALS; TUNGSTEN, MOLYBDENUM, VANADIUM, URANIUM. HERMAN FLECK. *Proc. Colo. Sci. Soc.*, **11**, 103–176, 1916.

An excellent summary of data on the above metals. The minerals containing them are described as to properties, methods of identification, occurrence, etc. C. B. SLAWSON, W. F. H.

GEOLOGY OF KINGSTON (ONTARIO) AND VICINITY. M. B. BAKER. *Ontario Bur. Mines, 25th Annual Rept.*, part 3, 1–36, 1916.

This district is famous for the large number of minerals, at least 53, which have been reported; they include graphite, gold, arsenic, copper galena, sphalerite, talc, corundum, molybdenite, fluorite, pyrite, apatite, mica, feldspar and barite. L. S. R., W. F. H.

CHEMICAL AND MINERALOGICAL COMPOSITION OF METEORITES (ABSTRACT). G. P. MERRILL. Discussion by O. C. FARRINGTON. *Bull. Geol. Soc. Am.*, **27**, 50, 1916.

Traces of the following rarer elements were found to be present in meteorites: iridium, platinum, palladium, ruthenium, and vanadium. Negative tests were obtained for antimony, arsenic, barium, gold, lead, strontium, tin, tungsten, uranium, zinc, and zirconium. In the discussion Farrington suggested that radium should be added to the list of elements found in meteorites. W. F. H.

ZINC CARBONATE AND RELATED COPPER CARBONATE ORES AT OPHIR, UTAH. G. F. LOUGHLIN. *U. S. Geol. Survey, Bull.* **690**, 1–14, 1917.

The principal minerals present are ferruginous smithsonite, aurichalcite, malachite and azurite. The following interesting features were noted: (*a*) the marked lamellar structure of the zinc carbonate, (*b*) the prevailing absence of calamine, and (*c*) the intimate association of the zinc carbonate with copper carbonates. The zinc sulfate solution, the result of the oxidation of ferruginous zinc blende, invaded the limestone along fractures and replaced the rock by smithsonite. W. F. H.

THE ORIGIN AND OCCURRENCE OF CERTAIN CRYSTALLOGRAPHIC INTERGROWTHS. W. H. GOODCHILD. *Econ. Geol.* **11**, 397–402, 1916.

The author finds examples of the micropegmatitic structure in the copper-nickel ores of the Insizwa Range, E. Griqualand, S. Africa. He believes that this structure is due to a purification or squeezing out of one mineral along lines of weakness such as cleavage planes, and suggests that similar intergrowths elsewhere might also indicate deposition of ore from a state of fusion rather than from mineralizing solutions. W. F. H.

THE TERNARY SYSTEM CaO—MgO—SiO_2. J. B. FERGUSON AND H. E. MERWIN. *Proc. Nat. Acad. Sci.*, **5**, 16–18, 1919; *Am. J. Sci.* [4], **48**, 81–123, 1919.

An elaborate account of the thermal relations of this system, including data on the formation and properties of the compound $2CaO.MgO.2SiO_2$, which resembles the mineral oakermanite. E. T. W.