34.9 and H_2O 20.6, sum 99.6%. [No data are given as to the temperature at which the water is evolved. It is evidently essentially identical with peganite].

Physical Properties: Color pale yellowish green, becoming white on exposure to the weather or upon heating. Luster vitreous. Structure, crusts with granular crystalline surface. Fracture splintery-conchoidal. H. = 2.5. Sp. gr. = 2.05. Under the microscope it shows a cryptocrystalline structure and weak birefringence. No optical constants could be determined.

Occurrence: A pneumatolytic alteration product of granite, found near the road from Pontevedra to Campo-Lameiro.

Discussion: Resembles turquois, but differs in the absence of copper. Should be classed as a **variety of peganite** until its distinctness is confirmed by further chemical and especially by optical study. E. T. W.

CLASS: SILICATES. DIVISION: R'': SiO_2:H_2O = 1:1:X.

"**Katangite**" = **Cornuite**, Rogers, 1917

H. Buttgenbach: Description of the minerals of Belgian Congo. *Mem. acad. royale Belg., Cl. Sci.*, [2], **6**, no. 8, 33 pages, 1921; this mineral, p. 26.

Name: From the locality, *Katanga*.

Chemical Properties: A copper silicate, with the general ratios of dioptase, but giving about 10% water at 100° and 10% more at red heat. This is assumed to indicate the formula $H_2CuSiO_4 + Aq$. [Experience on colloid minerals has shown, however, that it is not sufficient to determine the water lost below and above 100°, and the only formula which can be regarded as at all established is $CuSiO_3 + X\ H_2O$. Abstr.]

Physical Properties: Amorphous. Color bluish; adheres to the tongue; sectile; sp. gr. 2.4.

Discussion: Evidently the same as amorphous chrysocolla, named **cornuite** by Rogers (Rev. amorph. min.; abstr. in *Am. Min.*, **3**, 157–158, 1918.).

E. T. W.

ABSTRACTS—CRYSTALLOGRAPHY

ESSENTIALS OF THE MINUTE STRUCTURE OF CRYSTALS. F. Rinne. *Physik. Z.*, **21**, 609–13, 1920.

Leptonology (λεπτός = fine, delicate) is the name proposed to designate stereochemistry, stereophysics and crystal structure as a group. The units dealt with (atoms, ions, molecules and even electrons) are called leptons. Geometrical crystallography may be regarded as macro-stereochemistry, crystals being sections of the leptonic structure whose faces and edges are planes and lines of high atomic concentration. In a leptonic sense amorphous matter is no less regular than crystalline, the latter representing three dimensional periodicity of space lattices, while the former may be compared with an excessively fine crystal powder. Leptonic structures may contain groups or clusters. These should be searched for and a means found to designate them, just as the chemist designates radicles in his chemical formulae. Mixed crystals are transitions between chemical compounds and physical mixtures and this conception may be extended to regular intergrowths of unlike crystalline substances. Morphotropism is produced by chemical substitution which may slightly change the mode of aggregation of the leptons. R. suggests that certain structure types (isotypes) combine to produce form groups irrespective of the chemical composition. Crystal growth and solution is a matter of electrostatic attraction and repulsion between atoms in the outer layer of the crystal and the atoms in the solution. The leptonic structure of the crystal also plays a rôle in chemical decomposition, as shown by the alterations of the micas and zeolites. OTTO VON SCHLICHTEN

A SLIT-ULTRAMICROSCOPIC ARRANGEMENT FOR INVESTIGATING CRYSTALLIZED SUBSTANCES. WILHELM EITEL. *Centr. Min. Geol.*, **1919**, 74–85.

A description of the apparatus is followed by examples of certain minerals in whose investigation it was used. E. F. H.

UNMIXING DISPERSOIDS IN ANISOTROPIC MEDIA. WILHELM EITEL. *Centr. Min. Geol.*, **1919**, 173–183.

An investigation of mixed crystals of the system KCl-NaCl. E. F. H.

CERTAIN CENTRAL SECTIONS OF THE GLIDING ELLIPSOIDS OF CALCITE AND RUTILE. LEONHARD WEBER. *Centr. Min. Geol.* **1919**, 353–358.

A discussion of the relations of the crystal axes to the axes of the ellipses cut from the gliding ellipsoid by certain crystal faces. E. F. H.

WIRE SHAPED CRYSTALS OF TUNGSTEN. R. GROSS AND N. BLASSMANN. *Neues Jahrb. Min. Geol., Beil.-Bd.* **42**, 728–53, 1919; through *Min. Abst.* **1**, 187, 1921.

Electric light filaments after long use developed corrosion surfaces. On examining the wires by a modified Laue method, they were found to have become crystalline, with a somewhat distorted holohedral-cubic symmetry. E. F. H.

THE SIMPLE LATTICE FORMS OR EQUIVALENT LATTICE COMPLEXES. P. NIGGLI. *Centr. Min. Geol.*, **1919**, 38–43.

This paper gives a system of notation for simple lattice forms for use in determining by means of the X-rays which groups of movements such an "einfache Gitterform" may belong to. E. F. H.

AN ANALYTIC-GEOMETRIC INVESTIGATION OF CUBIC SPACE LATTICES. P. NIGGLI. *Neues Jahrb. Min. Geol., Beil.-Bd.* **43**, 1–73, 1919; through *Min. Abstr.*, **1**, 218, 1921.

The assignment of a cubic lattice form to its proper group of movements is investigated. E. F. H.

THE RULES OF TSCHERMAK AND BUYS-BALLOT. F. ZAMBONINI. *Atti. R. Accad. Sci., fis. mat. Napoli*, **16**, (14), 38 pp., 1916; through *Mineralog. Abstr.*, **1**, 367.

These rules attempted to show a relationship between the number or volume and form of the atoms in a compound and its crystal symmetry. They are tested by tabulating a large number of inorganic compounds. The conclusion is reached that no general relationship exists. E. F. H.