PROCEEDINGS OF SOCIETIES

MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

MINERALOGICAL SOCIETY, *June 7th*—SIR JOHN S. FLETT, President, in the chair.

Dr. J. E. DRUGMAN and Mr. MAX H. HEY: *Legrandite, a new zinc arsenate.* A yellow transparent mineral on a single specimen of blende proved to be a new zinc arsenate. Chemical, optical, goniometric and X-ray measurements were made, and the name legrandite is proposed for the new mineral, the formula of which is $Zn_{14}(AsO_4)_9OH \cdot 12H_2O$.

DR. W. F. P. MCLINTOCK: *On the metamorphism produced by the combustion of hydrocarbons in the Tertiary sediments of south-west Persia.* At various localities in south-west Persia the escape and combusiton of gas or oil have resulted in the brecciation, partial fusion, and crystallization of calcareous marls with the formation of crystalline rocks consisting of pyroxene (diopside, aegirine-augite and aegirine), wollastonite, pseudo-wollastonite, bytownite, melilite, and leucite, with glass, recrystallized calcite, and anhydrite. In the field the rocks resemble vesicular igneous types but microscopic examination and chemical analyses, accounts of which are given, prove them in all cases to be metamorphosed sediments.

MR. F. A. BANNISTER: *On the determination of minerals in platinum concentrates from the Transvaal by X-ray methods* (with chemical analyses and syntheses by Mr. M. H. Hey): X-ray rotation photographs have been used to distinguish and select for chemical analysis the various platinum- and palladium-bearing minerals present in the concentrates of Bushveld platinum ore. The name cooperite is retained for PtS, tetragonal, space-group D_{4h}^9. The face-centered unit cell with edges $a=4.91$, $c=6.10$ Å., contains 4PtS. The atomic coordinates for platinum in this cell are $\frac{1}{4}\,\frac{1}{4}\,0$; $\frac{3}{4}\,\frac{3}{4}\,0$; $\frac{1}{4}\,\frac{3}{4}\,\frac{1}{2}$; $\frac{3}{4}\,\frac{1}{4}\,\frac{1}{2}$, and for sulphur:—$0\;0\;\frac{1}{4}$; $0\;0\;\frac{3}{4}$; $\frac{1}{2}\,\frac{1}{2}\,\frac{1}{4}$; $\frac{1}{2}\,\frac{1}{2}\,\frac{3}{4}$. The structure is a simple type of fourfold coordination built up from plane PtS_4 groups and tetrahedral SPt_4 groups, the Pt-S distance being 2.32 Å. Synthetic PtS has been prepared and is identical with the mineral cooperite. Laurite (RuS_2) occurs in small pyritohedral-cubic crystals and has the pyrite structure with unit-cell edge $a=5.59$ Å. The third mineral $PtPdS_2$, containing about 5 per cent. Ni, is also tetragonal with unit-cell edges $a=6.37$, $c=6.58$ Å. The unit cell contains $4PtPdS_2$ and the space group is D_{4h}^2. The name Braggite is proposed for this mineral as being the first discovered by X-ray methods.

MR. JOHN PARRY, MR. ALPHEUS F. WILLIAMS AND DR. F. E. WRIGHT: *On Bultfonteinite, a new fluorine-bearing hydrous calcium silicate from South Africa.* This new mineral was found in the Bultfontein and Dutoitspan diamond mines at Kimberley and in the Jagersfontein mine in Orange River Colony. It forms pale pink globular aggregates of radiating needles, and has much the appearance of natrolite. Analysis gives the formula $2Ca(OH_9F)_2 \cdot SiO_2$. From the manner in which the mineral is decomposed by water and by dilute acids, a formula written as $Ca(OH_2)SiO_2 \cdot Ca(OH, F)_2$ is suggested. Goniometric and optical examination of the minute crystals shows them to be triclinic, but much complicated by polysynthetic twinning. The mineral is related to afwillite with the addition of $Ca(OH)_2$ and CaFe, and the nearest ally is custerite [$CaO \cdot Ca(OH, F)_2 \cdot SiO_2$].