MINERALOGICAL SOCIETY (LONDON)

A meeting of the Society was held on Thursday, June 10th, 1954, at 5 P.M., in the apartments of the Geological Society of London, Burlington House, Piccadilly, W.1 (by kind permission).

The following papers were read:

(1) TRUSCOTTITE

By Dr. A. L. Mackay and Dr. H. F. W. Taylor

A new chemical analysis of the mineral truscottite confirms its formula as $CaO \cdot 2SiO_2 \cdot \frac{1}{2}H_2O$. X-ray examination of powdered and single-crystal material, the latter somewhat disoriented flakes, gives a hexagonal unit-cell with $a=9.72\pm0.01$ and $c=18.71\pm0.03$ Å which has c perpendicular to the principal cleavage and contains 12 formula units. The structure is stable up to 700° C., although the dehydration curve shows some loss at about 400°. Heating to above 1000° transforms the material first to wollastonite and then to pseudo-wollastonite together with cristobalite in each case. The structure appears to be one of layers, fundamentally similar to those found in gyrolite, but differs from the gyrolite structure in the arrangement of the layers and in the quantities of calcium and water between the silicate sheets.

(2) DIRECT MEASUREMENT OF REFLECTING POWERS WITH THE MICROPHOTOMETER

By Dr. A. F. Hallimond

By means of an inclined reversible reflecting surface it is possible to measure the incident and reflected intensities at quasi-normal incidence. The device is used on the microscope stage with the ordinary microphotometer arrangement.

(3) A NOTE ON THE RELATIONSHIP BETWEEN THE PRECISION OF CLASSICAL METHODS OF ROCK ANALYSIS AND THE CONCENTRATION OF EACH CONSTITUENT

By Dr. L. H. Ahrens

Geometric (log) scales clearly reveal a regularity between the concentrations of elements and the precision, expressed as a relative deviation, with which they have been determined in granite and diabase by means of classical methods of chemical analysis. As the regularity is well developed it may be utilized as a rapid and semiquantitative guide for assessing and comparing the precision of silicate rock analyses which have been carried out by means of these methods.

(4) A FURTHER NOTE ON THE PRESENTATION OF CHEMICAL ANALYSES OF MINERALS

By Dr. M. H. Hey

In a previous communication the advantages of presenting chemical analyses, whenever possible, as empirical unit-cell contents were stressed. A simple method is now proposed for calculating the most probable limits of error of the empirical unit-cell contents consequent on any assessed probable limits of error in the chemical analysis, density, and unit-cell dimensions. It is notable that in many minerals, especially silicates and oxides in which oxygen is an important constituent and often occupies an integral number of positions in the crystal structure, the probable error in the oxygen content of the unit-cell is relatively small and varies little for very considerable variations in the assessed analytical error.

The following papers were taken as read:

(1) AN OCCURRENCE OF PALYGORSKITE IN THE SHETLAND ISLES

By Dr. I. Stephen

A white to grayish-white material occurring in small pocket-like masses and as veinlets in montmorillonitized syenite has been shown to consist dominantly of the mineral palygorskite. The properties of the mineral have been investigated by optical, chemical and *x*-ray methods, and by *D.T.A.* and electron microscopy.

(2) ON THE OCCURRENCE OF THE RARE COPPER MOLYBDATE, LINDGRENITE, AT BRANDY GILL, CARROCK FELL, CUMBERLAND

By Mr. A. W. G. Kingsbury and Mr. J. Hartley

The occurrence of wulfenite and stolzite among material from an old trial-level on the east side of higher Brandy Gill, Carrock Fell, together with pieces of veinstone, indicated the presence of intersections between an east-west lead-copper vein and one or more of the "granitic" suite of veins that further south in and near Grainsgill carry tungsten and molybdenum minerals. Further careful examination has revealed the presence of small amounts of lindgrenite, hitherto not recorded in Great Britain.

(3) NEW OCCURRENCES OF VANADIUM MINERALS (MOTTRAMITE, DESCLOIZITE AND VANADINITE) IN THE CALDBECK AREA OF CUMBERLAND

By Mr. A. W. G. Kingsbury and Mr. J. Hartley

The finding in 1949 of a single small specimen of mottramite among material from an old trial on the west side of higher Brandy Gill, Carrock Fell, has resulted in the finding of further occurrences of this mineral, in addition to descloizite, and of vanadinite at several localities in the Caldbeck-Carrock area.

(4) DETERMINATION OF THE COMPOSITION OF NATURAL NEPHELINES BY AN *X*-RAY METHOD

By Dr. J. V. Smith and Prof. Th. G. Sahama

X-ray data obtained for 13 synthetic nephelines and 24 chemically analyzed minerals are plotted against the atomic percentage $K/(K+Na+Ca)$.

(5) ZOISITE-AMPHIBOLITE WITH CORUNDUM FROM TANGANYIKA

By Mr. P. M. Game

A colorless zoisite, occurring as a monomineralic rock, and a green zoisite, associated with red corundum, iron-poor hornblende and anorthite, occur in lenses in the basement complex of the Northern province of Tanganyika.

Analysis of the green zoisite shows it to be a non-ferriferous variety ($Fe_2O_3 < 2\%$). The values of the optic axial angle (for both green and white varieties) agree with those previously published for iron-poor zoisites, but the orientation ($\alpha \perp (010)$) and the dispersion ($r > v$, strong) are at variance with previous data for non-ferriferous zoisites and conform to the values quoted for zoisites with 5% or more of Fe_2O_3 (β-zoisite of P. Termier).

(*Titles and abstracts kindly submitted by G. F. Claringbull, General Secretary.*)