MINERALOGICAL SOCIETY (LONDON)

A meeting of the Society was held on Thursday, June 11th, 1953, 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) A Large Mineralized Cavity in a Tholeiite Dike in Northumberland.

By Mr. B. A. O. Randall.

A remarkable, large and mineralized cavity in a tholeiite dike at Sleekburn colliery, Bedlington, Northumberland, is described and other cavities in dikes in the N.E. coalfield are recorded. The Sleekburn cavity shows mineralized walls with pyrite, marcasite, ankeritic calcite and ankeritic dolomite in horizontal zones. The cavity is thought to owe its origin to gasification of coal caught up in the dike and the minerals to have been transferred to it from the surrounding strata by ground waters at low temperature.

(2) An Investigation of High-Temperature Optics in some Naturally Occurring Plagioclases.

By Dr. Olive Bradley.

Plagioclase crystals from several natural sources (including pitchstones) have been studied by optical methods. The results suggest that a transition series between the high and low-temperature forms is possible, and confirm that plagioclase composition determinations by universal stage methods only are unreliable.

(3) A Simple Monochromator.

By Mr. H. C. G. Vincent (communicated by the General Secretary).

An easily constructed and inexpensive monochromator is described. White light, after passing through an adjustable slit, is rendered parallel and dispersed by two hollow prisms in series containing α-monochloro-naphthalene. From the wide spectrum so produced any desired wave band may be selected on a calibrated arc, with settings independent of temperature and other variables.

(4) A Rapid Method for the Production of Thin Rock Sections.

By Mr. E. O. Rowland (communicated by Dr. A. K. Wells).

A technique is described whereby thin sections of rocks can be prepared much more quickly than by the methods currently employed. It involves the use of an ordinary type of surface grinding machine, fitted with a diamond-impregnated wheel. The process is mechanical almost throughout, and the finished sections are in no way inferior to those produced by hand.

(5) A Note on the Occurrence of Beryl and Löllingite at the New Consols Mine, Stoke Climsland, Cornwall.

By Mr. P. G. Embrey.

(6) Notes on the Occurrence of Cosalite and other Lead Sulpho-Salts at Grainsgill, Caldbeck, Cumberland.

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

Old references to the occurrence of antimonite at Carrock Fell are probably based on faulty identification. Recent examination has proved the occurrence in veins in the greisen

of cosalite ($Pb_2\ Bi_2S_5$), which has not been previously recorded as a British species, boulangerite and jamesonite.

The following papers were taken as read:—

(1) High-Temperature Phase Changes in Kaolinites.

By Dr. Wm. D. Johns.

Thermal transformations of kaolinitic minerals were studied in detail by *x*-ray diffraction and differential thermal analysis. It was shown that the crystallinity of the mullite formed at 1000° C. varies consistently with progressive disorder of the kaolinitic parent material. The dependence of the mullitization process on the disorder of the kaolinite confirms the presence of a poorly organized kaolinite anhydride following dehydroxylization. High-temperature thermal effects are interpreted as being associated with the evolution of energy at the time when slight changes in the octahedrally co-ordinated level of metakaolinite result in mullite-type co-ordination chains. In the case of well-ordered kaolinite, ignition results in the proper distribution of both anions and cations for the crystallization of mullite. In the case of completely disordered kaolinite, only the oxygen packing approaches that of mullite following ignition to 1000° C. In the case of halloysite neither cations nor anions are properly distributed to give mullite.

(2) A Saponite from Krugersdorp District, Transvaal.

By Mr. E. R. Schmidt and Mr. H. Heystek (communicated by the General Secretary).

A white, soapy clay mineral occurring in a vein in massive serpentines and amphibolites was investigated by optical, chemical, *x*-ray and differential thermal methods and identified as a saponite. It is a Mg-end member of the montmorillonite group with formula $(Fe_{0.01}Mg_{2.99})(Al_{0.37}Si_{3.63})O_{10}(OH)_2 0.18Mg$ in which 0.18Mg represents exchangeable cations consisting almost wholly of Mg.

(3) On the Occurrence of Nacrite at Shap, Westmorland.

By Mr. R. J. Firman.

Nacrite of hydrothermal origin has been identified by *x*-rays in crevices in the andesitic rocks around the Shap granite.

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