PROCEEDINGS OF SOCIETIES

MINERALOGICAL SOCIETY (LONDON)

A meeting of the Society was held Thursday, June 23, 1949, in the apartments of the Geological Society of London, Burlington House, Picadilly, W. 1 (by kind permission).

The following papers were presented:

(1) On the occurrence of neptunite and eudialyte in quartz-bearing syenites from Barnavave, Carlingford, Ireland.

By Dr. S. R. Nockolds.

The rare minerals neptunite and eudialyte, both previously unrecorded from the British Isles, are found as accessory constituents in peralkaline syenites at Barnavave, composed essentially of potash feldspar with varying amounts of quartz and ægirine-augite and minor amounts of sphene, wollastonite or pectolite. The syenites occur only as veins in limestone and are believed to represent original granite magma which has been desilicated with loss of Si, some Al and a little Na.

(2) Correlation of the Mohs's scale of hardness with the Vickers's hardness numbers.

By Mr. E. W. Taylor.

It has been found possible to measure the hardness of minerals by applying a diamond indenter under light loads. The impressions so obtained, although minute, may be regarded as an index to the hardness of the material, as is the case with metals and alloys. An attempt has been made to obtain the relative, if not the absolute, hardness figures for nine of the ten minerals included in Mohs's scale, and to express them by means of Vickers's hardness numbers.

(3) An X-ray examination of a sample of pure calcite and of solid solution effects in some natural calcites.

By Dr. K. W. Andrews (communicated by Dr. G. F. Claringbull).

"Specpure" calcium carbonate gave parameter values of $a = 6.3748 \pm 0.0005$ Å., α 46.08°, which are compared with previously reported values for calcite. An x-ray examination of nine natural calcites, of which seven are present in low-grade iron ores, reveals changes in inter-planar spacings which can be largely accounted for as being due to solid solution replacement of calcium by manganese. It is thought that in the natural calcites examined there is a residual solid solution content of some other carbonate or carbonates (probably of iron and possibly of magnesium) even when no manganese carbonate is present.

(4) Analytical notes II. The "ferrous iron" and silica determinations in rocks and minerals.

By Dr. M. H. Hey.

The tedious duplication of all the main determinations in a rock or mineral analysis may usually be avoided by utilization of some of the solutions and residues normally discarded; thus by a slight modification of the method of Meier and Stuckert, silica may be advantageously determined in the residue from the Lawrence Smith alkali determination. The determination of the state of oxidation by solution in HF+HCl+ICl and titration with KIO_3 is applicable to a wide variety of rocks and minerals and has notable advantages if the percentage of FeO is very low.