

CORRESPONDENCE

AN ABSOLUTE AGE DETERMINATION ON THE MOURNE MOUNTAIN GRANITE

SIR,—In the Mourne Mountains, Northern Ireland, there are several closely synchronous granites emplaced in Silurian sediments by a process of ring-dyke formation and cauldron subsidence (Richey, 1928; Emeleus, 1955; Brown, 1956; Brown and Rushton, 1960). Biotite has been separated from a typical specimen of granite G1 from the vicinity of Slievenagarragh on the eastern margin of the complex. Isotopic age determination by the potassium-argon method gave a result of 75 (± 7) million years. This, on the time scale of Kulp (1960) indicates that the intrusion occurred at the beginning of the Tertiary period.

The geological evidence of the age of the Mourne plutonic centre has been summarized by Richey (1928). The granites truncate a dense swarm of north-west trending dolerite dykes and in addition later dolerite dykes cut the granites. At one time the later set was regarded as Tertiary and the earlier dykes as Carboniferous, but further work (see also Tomkeieff and Marshall, 1935) has revealed the Tertiary characteristics of the whole swarm, both pre- and post-granite. McHenry (1895) found that the Tardree rhyolite of County Antrim was intermediate in age between the lower and upper basaltic lavas of the region. It was argued by McHenry, on the theory of fissure-eruption, that the Mourne granites might belong to the same inter-basaltic period, the evidence being that the granites are of similar composition to the Tardree rhyolite and occurred in time between two sets of basaltic dykes. According to Patterson (1953) there are sufficient chemical differences between the Mourne granites and the rhyolite to discount the suggestion that they may be comagmatic.

More recently it has been suggested (J. B. Simpson *in* Eyles, 1952, p. 4) that the Interbasaltic Bed is of late Miocene or even early Pliocene age, that is not older than about 23 million years. If this is so then on the evidence of the isotopic age determination there can be no direct relationship between the Mourne granites and the Tardree rhyolite, even allowing for the maximum likely error in the age determination and the apparent uncertainty of the palaeontological evidence for the stratigraphic correlation of the Interbasaltic Bed.

REFERENCES

- BROWN, P. E., 1956. The Mourne granites—a further study. *Geol. Mag.*, **93**, 72–84.
- BROWN, P. E., and B. J. RUSHTON, 1960. Some chemical data on the Mourne Mountain granite G2. *Geochim. et Cosmochim. Acta*, **18**, 193–199.
- EMELEUS, C. H., 1955. The granites of the western Mourne Mountains. *Sci. Proc. R. Dublin Soc.*, **27**, 35–50.
- EYLES, V. A., 1952. The composition and origin of the Antrim laterites and bauxites. *Mem. Geol. Surv. U.K.*
- KULP, J. L., 1960. The geological time scale. *21st. Int. Geol. Congr.* III, 18–27.
- MCHENRY, A., 1895. The age of the trachytic rocks of Antrim. *Geol. Mag.* **4**, 260–264.
- PATTERSON, E. M., 1953. Petrochemical data for some acid intrusive rocks from the Mourne Mountains and Slieve Gullion. *Proc. roy. Irish Acad.*, **55B**, 171–188.
- RICHEY, J. E., 1928. The structural relations of the Mourne granites. *Quart. J. geol. Soc. Lond.*, **83**, 653–688.
- TOMKEIEFF, S. I., and C. E. MARSHALL, 1935. The Mourne dyke swarm. *Quart. J. geol. Soc. Lond.*, **91**, 251–292.

J. A. MILLER,
DEPARTMENT OF GEODESY AND
GEOPHYSICS,
CAMBRIDGE.

P. E. BROWN,
DEPARTMENT OF GEOLOGY,
SHEFFIELD.

1st November, 1962.