

SHAND, S. J., 1931. The Granite-Syenite-Limestone Complex of Palabora, Eastern Transvaal, and the Associated Apatite Deposits. *Trans. Geol. Soc. S. Africa*, xxxiv, 81-105.

SPENCE, H. S., 1920. Phosphate in Canada. *Dept. of Mines, Canada*, Publ. No. 396.

EXPLANATION OF PLATE

FIGURE A.—Microphotograph of pyroxene-rich part of xenolith. Rock composed of green pyroxene, apatite, sphene, iron ore, quartz, and felspar. Notice the colour variation in the pyroxene, especially in the larger grains; the mass of anhedral grains of apatite at the centre of the photograph; the small drop-like grains of sphene; and the interstitial nature of the iron ore and quartz (pure white).

FIGURE B.—Microphotograph of felspathic part of a heterogeneous syenite. Rock composed of micropertithic orthoclase, pale green pyroxene, sphene, iron ore, apatite, quartz, and albite. Notice how the pyroxene tends to occur between the felspar grains; the larger grain size and mantling habit of the sphene, and the interstitial quartz. Myrmekite and albite occur between some of the grains of micropertithite.

CORRESPONDENCE

FURTHER REMARKS ON *PLATYCALYMENE* AND THE SEGMENTAL RELATIONS OF TRILOBITE EYES

SIR,—It has now been ascertained that the specimen in the Geological Survey Museum to which Dr. Stubblefield (1950, p. 67) referred as indistinguishable from *Platycalymene duplicata* (Murchison) is from the Raheen Shales of Passage East, County Waterford. It is thus more recent than anything in the Tramore Limestone Series (see Lamont, 1939), Stage 3 of which yields *P. éire* Lamont. The Survey specimen is of dark, slightly baked shale with pale streaks. On it there is also a kite-shaped plate, narrow and with sides subparallel through much of the length, belonging to a new species of *Plumulites* distinctive of the Raheen horizon. T. Austin, the original collector (1860, p. 71) pointed out that there is a Newtown Head at two separate localities in County Waterford, and that Portlock (1843, p. 754) erred in referring specimens to Tramore which should have been cited from Passage East. Salter is ambiguous about localizing trilobites from the Raheen Shales. These include *Barrandia portlockii* Salter (1849, p. 4; 1866, p. 140) and *Acidaspis jamesii* Salter (1853, p. 6), and some show close affinities with Scottish species from Balclutchie, which come from near the base of the Caradoc.

Since writing (1950, p. 300) on the probable trisegmental nature of the pseudofrontal lobe in *Platycalymene duplicata* as indicated by axial pits, I find that corresponding pairs of depressions, though less sharply defined, can sometimes be discerned at the sides of the pseudofrontal lobe in certain species of *Homalonotus*.

On the tentative ascription of the eyes in different families to successive segments of the pseudofrontal lobe, it should perhaps be made clear that while in Calymenidae they belong to the second segment, in Proetidae they may be connected with the third. This kind of distinction is possible in families as old as Lower and Middle Cambrian. In *Olenellus* cf. *gilberti* Meek (Walcott, 1910, pl. 41, fig. 1) the arcuate eyes join on to what is here regarded as the third segment of the pseudofrontal lobe. This is also true of *Callavia bicensis* Walcott (1910, pl. 41, fig. 9), and the form and position of the eyes suggest that they may be homologous with the alae of Harpedidae

and Cryptolithinae. In Lower Cambrian *Albertella helena* Walcott (1908, pl. 2, fig. 5), however, the eye appears to arise from the rear of the second of the three pseudofrontal segments, and it also seems to be attached to this segment in *Bathyriscus ornatus* Walcott (1908, pl. 1, fig. 1). In *Neolenus inflatus* Walcott (1908, pl. 5, fig. 2), the eyeline originates well forward in the pseudofrontal lobe, and similarly with later members of the Olenidae. This line of evidence tends to contradict the customary view that the eyes in Mesonacidae and Olenidae are homologous.

On the question of the evolution of the trilobite hypostome, account should have been taken of E. D. Gill's treatment of it as representing former dorsal segments, and I hope that some of my opinions are complementary to his. Consideration of a genus like *Phillibole* R. and E. Richter (1949) makes me doubt whether one can dogmatize about a definite number of cephalic segments in trilobites retaining ancestral characters.

ARCHIE LAMONT.

GRANT INSTITUTE OF GEOLOGY,
WEST MAINS ROAD,
EDINBURGH, 9.

27th March, 1951.

REFERENCES

- AUSTIN, T., 1860. On the Lower Silurian Rocks in the South-East of Ireland . . ." *The Geologist*, iii, 70-3.
- GILL, E. D., 1949. Descriptions and Biological Interpretation of some Victorian Trilobite hypostomes. *Proc. R. Soc. Victoria*, lxi (new series), 123-131.
- LAMONT, A., 1939. Notes on Distribution and Migration of Brachiopods in the British and Irish Lower Palaeozoic Faunas. *Irish Nat. Journ.*, vii, 172-8.
- 1950. Cephalic Segmentation and Sutures in Trilobites. *Geol. Mag.*, lxxxvii, 300-1.
- PORTLOCK, J. E., 1843. *Geology of the County of Londonderry and of parts of Tyrone and Fermanagh*, Dublin.
- RICHTER, R. and E., 1949. Die Trilobiten der Erdbach-Zone (Kulm) im Rheinischen Schiefergebirge und im Harz. 1. Die Gattung *Phillibole*. *Senckenbergiana*, xxx, 63-94.
- SALTER, J. W., 1849. British Organic Remains, decade ii, pl. vii. *Mem. Geol. Surv. U.K.*
- 1853. Ditto, decade vii, pl. vi.
- 1864-1883. Monograph of British Trilobites. *Palaeont. Soc.*
- STUBBLEFIELD, C. J., 1950. Remarks on Dr. Lamont's Interpretation of Features in the Trilobite *Platycalymene*. *Geol. Mag.*, lxxxvii, 67.
- WALCOTT, C. D., 1908. Cambrian Geology and Palaeontology, No. 2. Cambrian Trilobites. *Smithsonian Misc. Coll.*, liii, 13-52.
- 1910. Ditto. No. 6—*Olenellus* and other genera of the Mesonacidae. *Ibid.*, liii, 231-422.

RHYTHMIC LAYERING IN THE ULTRABASIC ROCKS OF RHUM

SIR,—In the May-June number of the *Geological Magazine*, 1951, pp. 166-8, you publish a preliminary note on recent observations made by Professor L. R. Wager and Mr. G. M. Brown on the "Rhythmic Layering in the Ultrabasic Rocks of Rhum". I found this note of particular interest as I have been studying the petrology of the south-western part of Rhum, and in particular the harrisite, for the past two years.

According to Wager and Brown, the harrisite was built up from below; and periods of upward growth of long, branching, coral-like olivines alternated with periods of precipitation and accumulation of discrete olivine