PRE-CAMBRIAN PERTHOSITES IN NYASALAND

SIR,—I am grateful to Dr. Mihir K. Bose for drawing attention to my paper on Pre-Cambrian perthosites in Nyasaland, (*Geol. Mag.* **99**, 92) but would suggest that he reads it again more carefully. I have throughout regarded the perthosites as being intrusives. I further stated that some appear to form ring structures with cores of biotite-pyroxenite and suggested that these represent the roots of volcanic complexes.

When he states that igneous action partly post-dates metamorphism he is merely repeating the view stated in my paper (p. 238) which was first suggested by Cooper (1946) and which is supported by Tilley's recent account of the nepheline rocks of Port Herald Hills (1961).

I suggested (p. 242) that the Lirangwe perthitic norite was an original syenogabbro which has suffered metamorphism resulting in exsolution and the formation of the perthite by unmixing. It is this which he says that I have not recognized. The original feldspar may have been anorthoclase (pp. 241–242) which unmixed as a result of granulite facies grade, or a lower grade of metamorphism.

Bloomfield (1961) has recently published an account of the northward continuation of the Lirangwe Complex. He states (p. 48), " From field and petrographic evidence it is concluded that the pyroxene-syenites (the perthitic norite of the writer) are para- or late kinematic rocks formed by a wave of alkali metasomatism passing through a body of basic and ultrabasic rocks during regional metamorphism." I prefer the view that an alkaline magma is responsible for this metasomatism as an accompaniment to its intrusion.

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2nd March, 1962.

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REVIEWS

GEOLOGIE VON PARAGUAY. By Dr. habil. HANNFRIT PUTZER. pp. xii + 182, 76 text-figs., 10 tables, 2 plates, and 1 geological map in pocket *Regionalen Geologie der Erde*, Band 2, Gebrüder Borntraeger, Berlin, 1962. DM 78.

Possibly few readers of this Magazine are familiar with the geology of Paraguay, and for those who wish to remedy this deficiency here is a comprehensive survey. It begins with a general introduction comprising some useful historical, physiographical, cartographical, climatological, and economic information. There is then a geological summary, followed by the main account in the usual systematic stratigraphical order, and then Post-Triassic igneous rocks. Brief chapters on the tectonic and palaeogeographical outlines of the country follow, with more substantial chapters on mineral wealth and details of the results of hydrogeological investigations in Chaco Boreal by Dr. Friedrich Bender. The book concludes with eight page summaries in English and Spanish ; a bibliography of about 110 titles ; subject, place-name and author indexes ; two half-tone plates of fossils ; and a folding, coloured map to a scale of about 1 : 2·5 m.