

pieces by the natives. A second complete smaller stone weighing about 950 grams which fell about 15 miles from Matatiele was obtained from Chief Jeremiah Moshesh, and is now in the Natal Museum at Pietermaritzburg. It is a veined grey bronzite-chondrite containing about $15\frac{1}{2}$ per cent. of nickel-iron, in which the ratio of iron to nickel is about $10\frac{1}{2}$, and about $5\frac{1}{2}$ per cent. troilite, and having a ratio of magnesia to ferrous oxide in the pyroxene of about 5.

CORRESPONDENCE.

THE CENTRAL RANGE OF TRINIDAD.

SIR,—Dr. Trechmann's brief paper on the Northern Range of Trinidad in the December number leads me to say that now nobody, I believe, would consider the Northern other than older than the Central Range. The structure of the latter is exceedingly complicated, presumably it is fundamentally an anticlinorium; and after five years in the Island, with the advantage of going over a large proportion of the ground with my colleague, Mr. W. B. Hume, who did much detailed work around Tamana and Brigand Hill, and with other geologists, one felt in 1920 that there remained many gaps in our knowledge to be filled in. Since that date many of these may have been bridged, and consequently other workers may be more competent to speak, but as matters then stood, the Central Range was held to consist of Barremian, Cenomanian and Priabonian cherts, grits, limestones and shales, extending almost across the Island and having a breadth of two to three miles. The grits with grains of bluish quartz were considered characteristic.

Mr. Bullen Newton has recently described the *Inocerami*, which occur, very rarely, in black shales intercalated in the cherts, white and grey banded rocks, breaking into columnar fragments and being apparently unconformable inliers.

The identification of the Cenomanian limestone from the eastern end of the Range, about $5\frac{1}{4}$ miles W.S.W. of Brigand Hill is due to Dr. Sommermeier, that from Pointe à Pierre, where Mr. Penny has done much work, to Messrs. G. D. Harris and Floyd Hudson.

The Priabonian beds of Morne Roche Quarry, about eight miles E.N.E. of Pointe à Pierre, are dated by the occurrence of a *Clypeaster*.

Speaking broadly, on either side of this ridge of Palaeogene and Cretaceous rocks lie Miocene deposits, Upper Aquitanian to Vindobonian, laid down in two separate basins of deposition, the whole, especially in the neighbourhood of Tamana, being much faulted, probably by pre-Pliocene movements. Fossils from several localities, e.g. the Matchapoorie Quarry and Cumuto Road (17 miles), are probably Lower Miocene, and perhaps Middle Miocene from the Manzanilla Coast. These have recently been described by Mansfield of the U.S.G.S. As the Miocene beds differ somewhat on the two sides of the Range, it is convenient to call the more northerly

the Brasso Sands and Clays, from a locality where they are well developed.

These flanking sands and clays include a "rubbly" coral limestone, occurring sporadically throughout, but especially along the northern edge on the west. This may be known as the Guaracara limestone, and often contains *Amphistegina* in quantity. To the south of the ridge of older rocks stretch the Naparima Series, consisting of radiolarian beds, yellow marls crowded with *Globigerina* in astonishing abundance, and clays, frequently full of foraminifera, *Cyclammmina* being considered characteristic.

In the Central Range the backbone of older rocks is cut off by a N. and S. fault to the W. of Brigand Hill and replaced by a northerly dipping monocline of Miocene beds continuing to the Coast of Manzanilla.

A simple way of visualizing Trinidad, in very general terms, is to consider it as consisting of three ridges of hills, the Northern, Central and Southern Ranges, these being as a whole progressively younger in a southerly direction; the intermediate valleys, to what extent bounded by faults it is hard to say, being infilled with Miocene and Pliocene beds.

JOHN PARKINSON.

THE THEORY OF MAGMATIC CYCLES.

SIR,—Owing to my absence from home I did not receive the galleys of my paper in the July number of this MAGAZINE until, as I found later, it had already gone to press. This must be my excuse for certain infelicities of expression and incomplete references to literature which otherwise would not have been allowed to pass. I should like, however, to take this opportunity of correcting a few misprints that may cause unnecessary confusion:—

p. 310, footnote 2, for "section 6" read "section 7".

p. 313, line 9, for "ans" read "and".

p. 314, caption 4A, read "The Zone of Flowage around a growing Bathylith".

p. 315, line 29, for "condition" read "conditions".

p. 315, section B, line 11, for "temperature" read "temperature of fusions".

p. 319, footnote 2, for "p. 165" read "p. 765".

p. 326, line 6, for "clean water" read "ocean water".

Fortunately these corrections and a few minor alterations have been made in the reprints of the paper.

ARTHUR HOLMES.

UNIVERSITY OF DURHAM,
9th July, 1926.