

ACROSS THE GREAT CRATERLAND TO THE CONGO. By T. A. BARNES, with an Introduction by J. W. GREGORY, F.R.S. pp. 276, with 82 figures and 2 maps. London: Ernest Benn, Ltd., 1923. Price 25s.

THIS pleasantly written account of an adventurous journey in Central Africa, undertaken mainly with an entomological object, contains a considerable amount of matter of interest to geologists, especially a graphic account of that remarkable region, hitherto mainly exploited by Germans, known as the Highlands of the Great Craters. Here is found what is probably the world's greatest crater, Ngorongoro, in the Engotiek district, some twelve by eleven miles in diameter, and surrounded by steep walls 1,700 to 2,000 feet high, with a lake 4 miles long on its floor. This crater and others like it, are due, according to Professor Gregory, mainly to subsidence; they occur in the down-sunken trough of the Eyasi Rift Valley, and are apparently of Oligocene age, or thereabouts. There are likewise in the same region a number of finely-formed volcanic cones of more normal type, such as Oldonyo-lengai, which is covered with a mysterious white coating, possibly due to some salt of soda.

The author gives a graphic account of the scenery, flora and fauna of the region traversed, and incidentally creates a very favourable impression of the activity and competence of the administration of the great Belgian colonies of Central Africa.

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THE AUSTRAL RHYNCHONELLACEA OF THE "NIGRICANS SERIES", WITH A SPECIAL DESCRIPTION OF THE NEW GENUS TEGULORHYNCHIA. By FREDERICK CHAPMAN, A.L.S., and IRENE CRESPIN, B.A. Proc. Royal Soc. of Victoria. Vol. xxxv, part 2, pp. 170-93, plates xi, xii, xiii. 1923.

THE Cainozoic Rhynchonellidæ of the Australian "*Hemithyesis Nigricans*" series have been studied by Chapman and Crespin, who find that the peculiarities of the group necessitate a new generic name, *Tegulorhynchia*, having for genotype *Rhynchonella squamosa*, Hutton.

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## CORRESPONDENCE.

### THE AGE OF THE HIRNANT BEDS.

SIR,—In his eagerness to claim the Hirnant Beds as Ordovician, Professor Jones has not stated the case completely. Whilst freely willing to admit that the structural details of the beds at Bwlch y groes are more complicated than my rough sketch-map indicated, the chief object of my note was to record the fact of the occurrence of beds containing *Dimorphograptus* overlying the *Phacops mucronatus* beds; the most convincing evidence was in a small exposure west of the road, where we found the *Dimorphograptus*

in a band about 5 inches vertically above mudstones containing *P. mucronatus* without any sign of discordance. These mudstones I believed to be the Moel-y-Ddinas beds of the Hirnant area. His statement, also, that the *P. mucronatus* fauna occurs 2,400 feet down in the Ordovician in Central Wales is most misleading: he should surely have made it clear that they are there in their usual position above the zone of *Dicellograptus anceps*, the highest Ordovician graptolite zone. It will probably be useful in future to note whether the fossil referred to *P. mucronatus* is the earlier mutation "*eucentra*" or "*mucronatus*" s.s. which seems to range higher, though both are seen side by side in the beds at Torver, near Coniston. Moreover, with regard to the graptolite shales of that area, Professor Jones knows as well as I do, that *Monog. atavus* is, for a graptolite, a long-ranged species, occurring in all three zones of *M. atavus*, *M. acinaces*, and *M. cyphus*, and being really more abundant in the two last named; its importance being that it is the earliest of all the *Monograpti* to make its appearance, and for some time is the *only* representative of that genus; now, as I pointed out to Professor Jones on the ground, *M. atavus* occurs in the Coniston district associated with another *Monograptus* which has not the leptograptid type of cell characteristic of *M. atavus*, but the simple cell of *M. cyphus*, and the assemblage of graptolites there is to me indicative of a higher horizon than that of the zone of *M. atavus*; I have not yet seen a graptolite fauna from that district indicating a lower horizon within the Valentian. Professor Jones is mistaken in thinking that *Cephalograptus acuminatus* has been found there. Professors Marr and Nicholson record it only from Browgill and note the occurrence of the *Atrypa flexuosa* zone in the Coniston district which, though correlated with the zone of *C. acuminatus*, has not yielded *C. acuminatus*.

I sincerely hope that some fresh definite evidence may be forthcoming to clear up this vexed question, which is complicated by the possibility of the Hirnant fauna being a facies fauna; hence the most convincing solution will be to find its equivalents in other districts. It is not so much the *vertical* succession that is needed as the knowledge of the age of the beds into which it passes *laterally*, especially if these be graptolite shales.

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November, 1923.