

CORRESPONDENCE.

AUGITE-BIOTITE-DIORITE OF THE NEWRY COMPLEX.

SIR,—In letters which appeared in the June number of the GEOLOGICAL MAGAZINE, Professor Shand and Dr. Wells both question the meaning of my statement that augite-biotite-diorite is certainly not diorite. My meaning is exactly paralleled in Dr. Wells's own letter with reference to the same rock. Dr. Wells writes, "The rock differs from normal (calc-alkaline) gabbro in two respects: a high content of biotite, and the more strongly sodic character of the plagioclase . . . I suggest that 'hybrid sodi-potassic gabbro' is the correct name." Presumably, therefore, Dr. Wells distinguishes between normal (calc-alkali) gabbro and sodi-potassic gabbro. Similarly the terms diorite (calc-alkali) and augite-biotite-diorite (in this case alkali-rich) are not synonymous. I did not say that augite-biotite-diorite has no essentials in common with diorite, as Dr. Wells seems to imagine, for I wrote "Mineralogically, it [the rock in question] is accurately described as augite-biotite-diorite, since in addition to augite and biotite the essential minerals are andesine and hornblende."

This discussion began when Professor Bailey wrote of the rocks that they "seem perfectly normal gabbro-diorites" (GEOL. MAG., 73, p. 268, 1936). Professor Shand agrees with this opinion, whereas Dr. Wells finds that, according to a classification for which he has preference, gabbro-diorite is as yet only a mathematical fiction.

Personally I am quite indifferent as to what the rock is called, provided it is realized that it is not a normal calc-alkali type, e.g. a member of a normal gabbro-diorite-granite series, for this has a petrogenetic significance. I have already suggested biotite-essexite-gabbro as an alternative name, and in my previous letter (GEOL. MAG., 73, p. 560, 1936) I wrote, "The Slievegarron rocks under discussion do not differ from gabbro in the direction of diorite, but in the direction of alkali-rich gabbro." Dr. Wells is obviously in agreement with me on this essential point since he wishes to term the rock "sodi-potassic gabbro".

Much could be written in reply to the letters of Professor Shand and Dr. Wells. A comparison, for example, between Dr. Wells's statements in the two lines at the top of p. 288 and in his closing sentence would provide an amusing topic. There is, however, no value in carrying this discussion farther. I heartily agree with Professor Shand that "it is futile to quarrel about the application of rock names until we are agreed about the meaning of these names". I therefore propose to end the discussion by re-naming the rock *garronite*, from the hill—Slievegarron—on which it is

typically developed. An adequate description of garronite, under the now abandoned term "augite-biotite-diorite", will be found in the *Quart. Journ. Geol. Soc.*, xc, 1934, 609-611, and a further discussion appears in the *GEOL. MAG.*, LXXIII, 1936, 560-2. The fact that a complete description of the rock exists should have made this prolonged discussion, as to the meaning of a name, unnecessary.

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5th June, 1937.

A PLEISTOCENE STRAND LINE IN THE VALE OF YORK.

SIR.—Mr. Wilfrid Edwards has recently described "A Pleistocene Strand Line in the Vale of York" (*Proc. Yorks. Geol. Soc.*, xxiii, 103), which he believes to be of pre-Hessle age. A part of his paper is, however, devoted to a consideration of the terraces of the Rivers Aire and Calder, from which the conclusion is drawn that the Lower (or 10 ft.) Terrace "fans out into the surface of the great mass of clays, silts, and sands which fill the Vale of York up to about 25 feet O.D." ; and that the Higher (or 20 ft.) Terrace is to be correlated with the strand line and the Leeds *Hippotamus* deposit. This may lead to serious confusion if allowed to pass unnoticed.

Mr. Edwards has himself observed that : "There is indeed a marked discrepancy in level at Ferrybridge, where the beach is perched on the hilltop at 80 to 100 feet O.D., above certain patches of sand at about 50 feet O.D., which appear to be of Higher Terrace age." One might have supposed this spectacle of a river terrace some 40 feet below its presumed base-level would have caused Mr. Edwards to reconsider his hypothesis and look elsewhere for a less ambiguous example of a 20 ft. terrace. Terraces at this height fan out into the sands and silts which fill the Vale of York up to about 50 feet O.D. ; they do not end on the 100 ft. level of the strand line.

In regarding the Leeds *Hippotamus* deposit as indicating an inter-glacial period, Mr. Edwards has arrived at a conclusion which I also reached, a couple of years ago (*Glacial Geology of Holderness and the Vale of York*, 88). On the other hand, the 20 ft. terrace is of late Hessle age.

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YORK.
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