

by my friend Mr. Tuckett was not in granite but (as described by myself on p. 12 of last year's volume) in a rock which was more nearly allied to the pyroxenites and bore every appearance of having had the structure completely altered by pressure, which should have destroyed any pre-existent cavities. Thus, though deeming myself fortunate in having elicited such an interesting contribution to the discussion, I do not yet see my way to adopting his explanation of the difficulty.

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THE EASTERN GNEISSES OF THE SCOTTISH HIGHLANDS.

SIR,—Mr. G. Barrow's paper on the Moine Gneisses of the Highlands (Quart. Journ. Geol. Soc., November, 1904) revives memories of old controversies. In 1883 I gave reasons (Q.J.G.S., pp. 355-414) for believing that the thin-bedded gneisses east of the line of the great overthrust were older than the Assynt Series (now proved to be Cambrian), and I proposed to call them 'Caledonian.' Professor Lapworth's brilliant work on the dynamo-metamorphism of the Highland region quickly followed, and it suggested the possibility that the Eastern Gneiss was a *mélange* of rocks of different kinds and ages which had been rolled out in the earth-mill. However, the researches of the Geological Survey seem to have rehabilitated my original contention, since they lead to the conclusion that these gneisses, in the words of Dr. Horne, "represent sediments of siliceous and argillaceous type." Sir A. Geikie in 1891 proposed the name 'Dalradian' for the gneisses and associated rocks of the southern Highlands; but these are now correlated by the Survey with the Moine Gneisses of the north-west, that is, with my *Caledonian*. I held that these rocks were pre-Cambrian, but newer than the Hebridean; and this, I understand, is the view which Dr. Horne is disposed to adopt, when, in the debate on Mr. Barrow's paper, he points out resemblances between them and the pre-Torrionian schist north of Loch Maree. If therefore any name is to be given to these eastern gneisses, I respectfully submit that 'Caledonian' has priority over 'Dalradian.'

Mr. Barrow's memoir suggests another point. In my papers on the "Crystalline Rocks of Malvern" (1887-1893), I contend that black mica is produced from chlorite. This view was received with opposition. The peaceful pages of the GEOLOGICAL MAGAZINE resounded with the weighty artillery of the late Lieut.-General McMahon thundering against "The Rape of the Chlorites." I declined to surrender, and now I am supported by Mr. Barrow, who remarks (p. 414) that "A striking feature of the grey gneisses is seen in the films of felted biotite, derived from original clastic chlorite . . ." If chlorite is changed to biotite in Scotland, why not at Malvern, where too the associated acidic and basic rocks readily account for the necessary potash and iron-oxide? Since my heresy receives such respectable support it would seem to be worthy of reconsideration.

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CHELTEMHAM.

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