

## ON THE RELATION OF THE PORPHYRY SERIES TO THE SKIDDAW SLATES IN THE LAKE DISTRICT.

SIR,—In the GEOLOGICAL MAGAZINE for February last, there is a paper by Mr. J. R. Dakyns on a supposed unconformity of the Porphyry series on the Skiddaw Slates. When I read the paper I doubted very much the correctness of Mr. Dakyns's observations, and since then I have, along with my colleague (Mr. J. C. Ward, who is now surveying that part for the Government Geological Survey), examined the line of junction between the Porphyry series and Skiddaw Slates from Derwentwater to Warnscales Bottom, Buttermere, and we found that throughout the entire distance the two formations are brought against each other by faults of considerable magnitude. I cannot enter into details, which must be reserved for the Geological Survey Memoirs of that country. It is possible there may be an unconformity between the two series of beds, but the evidence of it must be sought for elsewhere than in the district described by Mr. Dakyns.

In reference to an additional Note by Mr. Dakyns on the same subject in the March number, I beg to say there is "a fault with an enormous throw" along Derwentwater.—I am, Sir, your obedient servant,

W. TALBOT AVELINE.

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KENDAL, June 28th, 1869.

## ON MR. MURPHY'S THEORY OF THE CAUSE OF THE GLACIAL CLIMATE.

SIR,—In the GEOL. MAG., July 1, p. 331, you report at the meeting of the Geological Society, June 9th, a paper by J. J. Murphy, Esq., F.G.S., "On the Nature and Cause of the Glacial Climate." It is stated that he agrees with me as to the Cause of Glacial Climate except in one instance. "He maintained in opposition to Mr. Croll that the glaciated hemisphere must be that in which the summer occurs in *aphelion* during the greatest eccentricity of the earth's orbit. He shewed that a cool summer had more to do with the prevalence of glacial conditions than a cold winter, and referred to several phenomena furnishing arguments in favour of his opinion."

I fear that Mr. Murphy must be resting his theory on the mistaken idea that a summer in *aphelion* ought to melt less snow and ice than one in *perihelion*. It is quite true that the longer summer in *aphelion*—other things being equal—is colder than the shorter one in *perihelion*, but the quantity of heat received from the sun is the same in both cases. Consequently the quantity of snow and ice melted ought also to be the same; for the amount melted is in proportion to the quantity of energy in the form of heat received.

It is true that with us at present less snow and ice are melted during a cold summer than during a warm one. But this is not a case in point, for during a cold summer we have less heat than during a warm summer, the length of both being the same. The coldness of the summers in this case is owing chiefly to a portion of the heat which we ought to receive from the sun being cut off by some obstructing cause.