Carboniferous times, and with which the Shap granite is itself connected.

The metamorphic effects of the granite upon the surrounding rocks are then described. A remarkable set of changes produced in a series of andesites and another of rhyolites, with their respective pyroclastic rocks, is considered in detail, and the results of the metamorphism of the Coniston Limestone series and the Coniston Flags and Grits are given and compared with those obtained by other workers in Norway, the Harz Mountains, and elsewhere.

CORRESPONDENCE.

MR. OLDHAM ON THE HIMALAYAS.

SIR,—It is needless to say how much it has pleased me that Mr. Oldham's knowledge of the structure of the Himalayas confirms in his opinion my theory, published in the "Physics of the Earth's Crust," concerning the formation of a mountain range, and of the effects of its subsequent denudation. I wish, however, to point out that the latter are in my work discussed on the hypothesis that the chief streams are formed, and deposit their sediment, on the less steep side of the range. I had rather the instance of the Andes in my mind as a typical range of mountains. With the Himalayas the case is different. The great rivers, Indus and Ganges, after collecting their burden of detritus during long courses between the parallel ridges, finally break through the steep face of the range, and form their deposits on that side. Hence arises the modification of my theory, which Mr. Oldham has found it necessary to make in applying it to the denudation of the Himalayas. O. FISHER.

HARLTON, CAMBRIDGE, *5 Feb.* 1891.

MR. MELLARD READE AND THE HERSCHEL-BABBAGE THEORY OF MOUNTAIN BUILDING.

SIR,—The theory of the formation of mountains set forth by me in "The Origin of Mountain Ranges" has been so frequently of late alluded to as a modification of the "Herschel-Babbage" theory, that I shall feel much obliged if one of those who think it so will kindly set forth what the "Herschel-Babbage" theory is. I fear that my friend Mr. O. Fisher is largely responsible for this description of my theory.[1] I have examined his references to the works of Herschel and Babbage, and must certainly repudiate the labelling as a misdescription. There is no analogy between Herschel's view of the elevation of mountains and mine, and indeed by a sort of dramatic justice I find that Mr. R. D. Oldham[2] commends Mr. Fisher's work as containing the "most recent and complete adaptation of this (the Herschel-Babbage) doctrine to the theory of mountain formation."

As a matter of fact, the only element in my theory taken from either of these distinguished men is the law discovered by them that the lines of equal internal temperature in the Earth's crust (isogeo-

[1] Physics of the Earth's Crust, second edition, p. 132.

[2] GEOL. MAG. Feb. 1891, p. 73.