

PHYSICAL GEOLOGY OF THE SUB-HIMALAYA.

SIR, — May I be permitted a few remarks in reply to Mr. Medlicott's review of my memoir in this MAGAZINE for October, 1890? I cannot attempt to answer objections of a theoretical nature, or of purely local interest to us in India; but on one or two points where I think Mr. Medlicott has mistaken my words or my meaning I would say a word or two. With regard to the fault at Jirinjala in my horizontal section No. V., which Mr. Medlicott says "seems uncalled for," I must plead that the fault is nevertheless there, as plainly visible in the natural sections exposed as in my drawn section. It is not a fault inserted to meet a theoretical requirement. The firm lines in all my sections indicate facts (when not otherwise stated in the text), whilst the dotted lines alone represent inferential conditions of the rocks. The large scale, four inches to the mile, maps would have fully satisfied Mr. Medlicott on this point had they been procurable. In speaking of, and representing, the main boundary, the Nahai-Siwalik boundary, and others, as faults, I hope I have not "ignored their primary and most interesting character" (see p. 118–123 of my memoir). They are certainly faults *now*—sometimes with miles of throw or thrust (see p. 66); hence to lay them down on the map as natural boundaries, because they originally grew out of such, would be a very grave error. It would be akin to representing the lie of the beds as horizontal, for the reason that they were originally deposited so. In addition it must be remembered that the present faulted boundaries are not absolutely, but only approximately, coincident with the original limits of deposition. In some cases, as at Jirinjala, the original boundary, and the approximately coincident faulted boundary, are both present, and need a separate and distinct method of representation.

The difference between section VI. and section IX. with regard to the position of the Nummulitic and Tal beds on the subjacent rocks, is owing to the thinning out of the Massive Limestone, or to its previous erosion. This is plainly illustrated in the map accompanying my paper on the "Physical Geology of W. British Garhwal" (Records G. S. of I. vol. xx. pt. 1). To state, as Mr. Medlicott has done, that my "facts in favour of an earlier plication of the Himalayan rocks are only quotations of wholesale differences of strikes in that region," is to simply misquote me, as the first words on page 127 of my memoir will make evident.

In criticising Mr. Mellard Reade's theory of mountain-formation, as applied to the Himalaya, I did not impute blunders to Babbage and Herschel "in the elements of science." What I did was to show that Mr. Reade's application of the Babbage-Herschel theory in the case of *great sedimentation* was unsound. Again, though the Babbage-Herschel principle may involve the idea of a "fluid substratum," as Mr. Fisher's theory does, the same is not true of Mr. Reade's theory, with which I was concerned. The latter expressly assumes the earth to be solid.

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