PROFESSOR PHILLIPS ON THE DEVONIAN QUESTION.

SIR,—The address delivered in 1869, by John Phillips, at Westward Ho! and which has just been communicated by Mr. Hall (see GEOL. MAG., July, 1878, p. 307), seems to contain the latest views of that geologist upon the Devonian rocks, though not, I believe, his latest expression of them. A more recent statement is given in the "Geology of Oxford and the Valley of the Thames" (1871), pp. 79, 80. As far as I can understand, these views of Prof. Phillips do not differ so very materially from those advocated by Jukes. In the address just mentioned, Phillips says, "Gentlemen of Devon, never give up the independence of your country, hold to the North Devon series, and if it is the case, as Mr. Godwin-Austen invites us to believe it is, that they do not belong to the Old Red Sandstone series, do not let us conclude that because they do not belong to that particular class, they are nothing at all."

In the "Geology of Oxford," etc., are the following passages, "The Old Red Sandstone is followed in Devonshire, and still more remarkably in the South of Ireland, by a series of shales, grits, and limestones, with a large suite of fossils, having on the whole a considerable analogy with the still richer associations of marine life in the Carboniferous Limestone. . . . . Near Linton, in North Devon, and south of Plymouth, we may satisfy ourselves of the fact that Old Red Sandstone underlies the Devonian beds. . . . . From this series of rocks to the Carboniferous strata which succeed, the transition is easy, so easy indeed that, in the opinion of Sir R. Griffith and Mr. Jukes, the whole of the Devonian series may be united with the lowest members of the Irish Carboniferous group (Yellow Sandstone and Carboniferous shale). What seems ascertained truth is the close approximation in time, in character of deposition, and in forms of life, of the South Hibernian and South Welsh rocks; while the North Devonian strata contain with these a somewhat lower group, not distinctly represented in Wales or Ireland."[1]

Here, then, we find that Professor Phillips would separate the Old Red Sandstone from the Devonian rocks, while he speaks of the Devonian fauna as "continued into the cognate though later Carboniferous Period." I think by the term Carboniferous Period, as here used, Professor Phillips referred especially to the fauna of the Carboniferous Limestone. But his views, so cautiously expressed, seem to approximate towards those of Jukes, and to render their differences chiefly a question of terms or classification. Certainly they are distinct from the contention of Mr. Etheridge, "that the Devonian system, as a group of strata, both physically and palæontologically, may be (as long ago proposed) naturally and conveniently divided into a Lower, a Middle, and an Upper Series, and that there is valid reason for believing that this system equalled in time the whole of the deposits of the Old Red Sandstone proper." (Quart. Journ. Geol. Soc., vol. xxiii. p. 686.) A statement which is perhaps a little modified by a subsequent admission (p. 690) that,

[1] These remarks were quoted by me in a review of the Devonian Question, Quart. Journ. Science, Jan. 1873.

"On the other hand, there may be grounds for endeavouring to establish contemporaneity between the Upper Devonian series of North Devon and the Carboniferous Slates of the South of Ireland, upon the principle of geographical rather than chronological distinction."

Guided by the opinion of Professor Phillips, we should certainly be warranted in keeping distinct the application of the terms Old Red Sandstone and Devonian, which, when used synonymously, are productive of much confusion. In this case of course the Lynton Sandstone (Foreland Group) of North Devon should be classed as Old Red Sandstone, and excluded from the Devonian system.

Mousehold, Norwich, 10*th August*, 1878. Horace B. Woodward.

"COAST ICE ON A RISING AREA." REPLY TO DR. G. LINNARSSON.

Sir,—Two days ago, on returning from a long geological excursion which I had been making in the interior of Japan, I received several numbers of the Geological Magazine. In the Number for February I read the letter of Dr. G. Linnarsson of Stockholm, criticizing my views of glacial phenomena which appeared in a series of articles in your Magazine, under the title "Across Europe and Asia." If Dr. Linnarsson had awaited the completion of my article, or if he had only carefully interpreted those portions of it that were in his possession at the time he wrote, I think he would have seen that he was campaigning against an imaginary foe.

He has failed to observe that my travelling notes are only a series of fragmentary jottings collected and subsequently written out under considerable difficulties. Under such circumstances, feeling my fallibility, I held myself open to correction, and it is therefore now with pleasure that I thank Dr. Linnarsson for having incidentally pointed out my *oversight* in ascribing the presence of erratics at higher levels than their parent rock to the action of coast-ice on a *rising* area.

I say oversight, advisedly, first because this is a phenomenon which is so universally referred to by all writers on these subjects, and secondly because previously I myself, in the Geological Magazine, Dec. II. Vol. III. Nos. 7, 8, and 9, when writing more generally upon coast-ice, have referred to these appearances as being due (as many before me have suggested) to the action of coast-ice on oscillating or sinking areas. For example, in one place I make the following note: "Other blocks again are shown to have travelled from low plains to the summit of hills, which is explained on the supposition that the land at the time of their deposit was slowly subsiding, and the ice-fields of successive years were raising the blocks higher and higher."

With regard to the remainder of Dr. Linnarsson's criticisms, which form the substance of his correspondence, I hardly feel that I can acquiesce in the manner in which he has treated my communication. One of my chief objects, when speaking of the appearances which I saw along the coast of Finland, was to show that it was by no means