

that since the previous meeting I had re-examined the district with Prof. Hughes and several other excellent observers, and that I had obtained such further evidence in confirmation of my views as will completely dispose of the most important of the arguments relied upon by Prof. Geikie.

When the paper is published, I shall be prepared to reply more fully to the author's statements.

HENRY HICKS.

HENDON, N.W.

P.S. (June 11th)—I should like to mention that the above letter is in substance identical with one sent to "Nature" on May 6th, which, however, has not appeared in that Journal, yet the abstract of Prof. Geikie's paper was printed there with exceptional prominence. The readers of the GEOLOGICAL MAGAZINE can draw their own conclusions.
H. H.

THE PRE-GLACIAL AGE OF THE MAMMOTH.

SIR,—In the last of Mr. Howorth's series of essays on the Traces of a Great Post-Glacial Flood, entitled Flora and Fauna of the Loess, my evidence as to the age of the Mammoth quoted by my fellow-worker, Dr. Nehring, is dealt with as follows:—

"Let me quote another sentence from Dr. Nehring's paper. He says, 'The Mammoth is, as Prof. Boyd Dawkins has already pointed out, Pre-Glacial, Glacial, and Post-Glacial; his remains occur not only in the Loess, but in the most varied deposits of Europe, as in the Forest-bed, in Glacial gravel layers, in clay and loam, in Tuff deposits.' Dr. Nehring is surely not aware of the very thin ice upon which he is skating in this passage. Whether the Mammoth is found in the Forest-bed or not is assuredly one of the most disputed points in English geology. The evidence seems to point most certainly to its not occurring in the Forest-bed *in situ* at all, and that I believe to be the matured opinion of those geologists who have the best right to decide such a point. In regard to the Mammoth being Pre-Glacial, I altogether dispute it according to our present lights. The evidence is of the most fragile and unsatisfactory kind, so fragile that it is not surprising my gifted friend Professor Dawkins, who is quoted by Dr. Nehring, has published more than one opinion on the subject. As to the Mammoth being Inter-Glacial, I shall have a good deal to say, if my friend Dr. Woodward will permit me to continue the series of papers I have been writing in the GEOLOGICAL MAGAZINE. At present, I can only say that I believe the Mammoth and the *Rhinoceros tichorhinus* to have been, at all events in Europe, so far as we at present know, entirely Post-Glacial, and I maintain that they are the characteristic quadrupeds of the Post-Glacial Ante-Neolithic deposits."—GEOLOGICAL MAGAZINE, Dec. II. Vol. X. p. 278.

Any one reading the above passage would carry away the idea that I am doubtful as to the Pre-Glacial age of the Mammoth, and that Dr. Nehring is in ignorance of the fact that the best judges in this country had decided against it. What are the facts? To pass over the Scotch caves, Dr. Falconer identified the Mammoth as a mammal of the Pre-Glacial Forest-bed more than 20 years ago. This conclu-

sion seemed to me open to doubt in 1868, but subsequent discoveries compelled me fully to accept it in 1878 (Q. J. G. S. vol. xxxv. p. 138). Since that time repeated discoveries leave no room for doubt about the matter. It is accepted by the late Professor Leith Adams, in his work on the Mammoth (Pal. Soc.), as well as by Mr. E. T. Newton in his valuable memoir on "The Vertebrata of the Forest Bed of Norfolk and Suffolk" (Geol. Survey, 1882), who may be supposed to have 'matured opinions,' and a right, if not "the best right to decide such a point." Its Pre-Glacial age is further confirmed by the discovery of one of its teeth in the gravel beneath the boulder clay of Northwich, Cheshire, as I pointed out in 1878 (Q. J. G. S. vol. xxxv. p. 141). Surely the view which I retracted against the Pre-Glacial Age of the Mammoth, although it be supported by Dr. James Geikie, cannot be said to balance the testimony of these independent witnesses which Mr. Howorth either does not know, or thinks fit to ignore. Whether or no my opinion is sufficiently 'matured' by the 25 years during which I have been working at the Pleistocene Mammals, to count in the controversy, may be left to those interested in such questions.

Mr. Howorth's method of disposing of evidence against his views may perhaps be allowable to an advocate fighting a case in the law courts, but it is not likely to advance the knowledge of the facts. We are not in a court of law, but in a court of science, where the wig and the bands of the special pleader appear to me to be out of place. Into the controversy as to the Glacial Period, or into the last revival of the old diluvial doctrine given up some fifty years ago by its great preacher in this country, Dr. Buckland, I must decline to enter, believing that the only satisfactory method of dealing with such matters is not merely to compile opinions at home, but to test them by years of patient work in the field, after the fashion of our great leaders, Lyell, Evans, and Prestwich.

W. BOYD DAWKINS.

OVERLAP AND OVERSTEP.

SIR,—Mr. Goodchild's article on "Overlap and its related Phenomena," contains a useful suggestion, though I think the ambiguity arising from the use of the term overlap in a twofold sense and the desirability of limiting its application may be stated without importing further confusion into the subject or wrapping it up in the elaborate phraseology which Mr. Goodchild has employed.

In the first place I never myself met with a person who applied the term overlap to a case of thinning out, whereby the higher member of a conformable series comes to rest upon a lower member of the same series in consequence of the alternation of an intervening stratum. If the term has ever been used to express such a relation, I think the precedent may safely be disregarded, since it is obviously unnecessary to confuse such a simple matter as the thinning out of a bed with the more complicated phenomena of overlap.

Secondly, I fail to see in what particular Mr. Goodchild's definition of overlap (p. 226) differs from that ordinarily given (see Jukes'