

BOULDER-CLAY AND DRIFT OF NORFOLK AND SUFFOLK, AND ON THE NORTH SIDE OF THE THAMES VALLEY.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—It is a pity that Mr. Maw should mix up doubts as to the age of the Boulder-clay capping Corton Cliff with those as to the age of the Cromer beds. If there is one question connected with the Drift free from doubt, it is the identity of the capping clay of Corton with the Boulder-clay of High Suffolk; and no one would, I feel sure, be more ready to admit this than Mr. Maw himself, if he examined the country between Corton and High Suffolk. With the beds of the Cromer coast, however, the case is quite the reverse; for the features displayed by the north and north-east of Norfolk are so excessively perplexing, that I should desire to pay respect to the views of any one as to the structure of this part, however much they differed from what I believed to be the truth, and especially to those of so courteous an opponent as Mr. Maw; but that gentleman does not seem to be aware that the *physical* formation of the country, apart from any geological question, is entirely at variance with the diagram illustrating his paper,—the whole of the land between the Boulder-clay country of High Norfolk and Suffolk, and Cromer, being (except where the valleys of the Yare and Bure cut through it) one continuous table land: and, although the elevations are not given in the map, the country behind Cromer and Sherringham cannot, I imagine, be any lower than the High Suffolk country from which Mr. Maw starts in his diagram. Another error of fact into which he has fallen is that of confounding my views with those of Mr. Gunn. The red loam at the base of Corton Cliff, which Mr. Gunn calls the “Lower Boulder-clay,” and identifies with the Cromer Till, I regard as the mud deposit overlying that Till called by Sir Charles Lyell the “contorted drift.” Mr. Gunn finds his Upper and Lower Boulder-clays in the Cromer and Hasboro’ cliff sections, whereas I do not recognize any portion of the Upper Glacial (and but very little of the base of the Middle) along the whole twenty miles line of cliff from Hasboro’ to Weybourne. Mr. Gunn further seems disposed to identify his “laminated beds” with the Chillesford-clay, whereas I cannot discover their geological existence, and regard them as only the easterly modification of the Weybourne sand. Immediately upon the distribution (in July, 1865) of my small map of the East of England Drift, and remarks in explanation, Mr. Harmer, of Norwich, took up the task of mapping geologically the beds from the Crag upwards in the Ordnance sheets of that part of Norfolk which contain the principal drift deposits. Much time must of course elapse before such a labour can be completed, or even put in an intelligible shape, although I hope nothing may prevent his eventually doing so. I mention this because, having been furnished with all his results as he has proceeded, and visited with him from time to time all the sections of importance met with, nothing has yet transpired from them to show that the views of structure adopted by me are in any material

degree erroneous. Some modifications—not affecting, however, the main points of structure—I perceive, will have to be made, especially the absence of the Middle Glacial sands in the north-west part of central Norfolk, and the presence there of extensive Post-glacial gravels; and I think it not improbable that the Till of Cromer, which in the structural section given by me in the 22nd volume of the Quarterly Journal of the Geological Society, is shown as occupying the same position of inferiority to the contorted drift as that possessed by the Chillesford clay, although necessarily for want of connexion along the line of section distinguished by a separate letter, may prove to be an expansion of that clay itself. It is a step, however, gained, that one point, for which I have long contended, is now admitted to be correct by my principal opponent,¹ viz. the superiority of the Chillesford shell-bed to the Fluvio-marine Crag; and that the identity which I pointed out between this bed and the Upper Crag of Mr. Taylor, has now received the assent of Mr. Taylor, Mr. Gunn, and Mr. Maw.

Perhaps you will permit me to observe, in reference to Mr. Dawkins' letter respecting the Boulder-clay of Havering, that if by the phrase, "on the southern side of the range of heights that form the northern boundary of the Thames Valley," he means to imply that the Boulder-clay lies *in* the valley of the Thames, I demur wholly to such an implication. The patch at Havering (as Mr. Dawkins knows) is shown in my survey map, placed in the library of the Geological Society, and its position illustrated by section.² It may be seen from the map and sections that the heights of the north side of the Thames Valley are formed of Bagshot sand and Boulder-clay together (the latter having taken the place of the former, and of the uppermost part of the London clay), and that the northern valley slope has been cut down from these two formations indifferently; so that, instead of the Boulder-clay at Havering lying on the southern side of the heights, it is essentially a part of those heights themselves.—I am, Sir, your obedient servant,

SEARLES V. WOOD, JUN.

BRITISH FOSSIL CORALS.

To the Editor of the GEOLOGICAL MAGAZINE.

DEAR SIR,—The generic name of the Carboniferous corals, formerly confounded with *Aulophyllum*, should be *Cyclophyllum*, not *Cyclocyathus* (see *GEOL. MAG.*, September, 1867, p. 416). There is an error in my monograph of the Liassic Corals, which makes *Trochocyathus Moorei*, Ed. and H., stand in the place of *Theocyathus Moorei*, Ed. and H. As these errors may give rise to much bewilderment will you kindly insert this note.

Yours truly

P. MARTIN DUNCAN.

September 18th, 1867.

¹ Fisher, *Quar. Journ. Geol. Soc.*, Vol. xxiii. p. 175.

² See also Section No. 4 of my paper in the forthcoming number of the Quarterly Journal of the Geological Society, and Vol. III. p. 57, of the *GEOLOGICAL MAGAZINE*.