

from Leicester to Chelmsford, and from Buckingham to the East Coast, I never until lately succeeded in obtaining a reliable shell. I recently, however, found two perfect specimens of *Ostrea edulis* in the Middle Glacial gravel, above the Brick-clay, in the disused brick-field at Stevenage. Any one having local opportunity would do good service by hunting this locality before the field is levelled and closed up, which is now being done.

As *O. edulis* is not an arctic shell, and occurs as far south as Gibraltar, its presence, as far as it goes, accords with the other characters of this formation in shewing that the Middle Glacial was not an arctic deposit.

Yours faithfully,

SEARLES V. WOOD, JUN.

BRENTWOOD, ESSEX, June 7, 1867.

P.S.—The obscure specimens of shell obtained from Saxlingham, Mr. Taylor will, I think, find belong, not to the Middle Glacial, but to the Chillesford beds (*i.e.* his Upper Crag), which are present there in a feeble form resting on the Chalk. Those obtained by him from Sprowston I presume are from the Middle Glacial sands, as the Upper Drift does not occur, to the best of my knowledge, at, or within, some four or five miles of that place. Perhaps, however, he may refer to some small outlier that Mr. Harmer and I have missed, or, possibly “Upper” may be a misprint in his letter for “Lower.”

ON THE NATURE OF EOZOON.

To the Editor of the GEOLOGICAL MAGAZINE.

SIB,—Having been engaged for some time on a paper on classification, with especial reference to the Mollusca, I had already in the introductory part of it written the greater part of what follows when I read in the GEOLOGICAL MAGAZINE an abstract of a memoir by Dr. Dawson on *Eozoön*. As it may be some time before my paper just referred to is ready for publication, I send you this part of it at once.

It will doubtless be some time before the true relations of *Eozoön Canadense* are finally settled. But before Mr. Hancock's paper on “Boring Sponges”¹ appeared, I was decidedly of opinion that the *Eozoön* had nearer relations with the Sponges than with the Foraminifera. That paper has quite confirmed me in this view; for Mr. Hancock shows the great similarity which exists between the disposition of the cells and sarcode in *Cliona* and *Orbitoides*. The latter genus was chosen by Dr. Carpenter for comparison with *Eozoön* to show the foraminiferal nature of the latter, and Mr. Hancock might fairly have carried on his comparison to *Eozoön*. Any one who compares the figures accompanying Dr. Carpenter's memoir on *Eozoön* in the Quarterly Journal of the Geological Society with Mr. Hancock's diagram of *Cliona*, will not fail to be struck by the similarity. Doubtless the *Eozoön* is allied to *Rhizopoda* as well as to the

¹ Ann. and Mag. Nat. Hist., 3rd ser. vol. xix. p. 229.

Sponges. And this is precisely what we might expect in so ancient a form. For it is well known that the more ancient forms often blend the characteristics of types, or as Dana expresses it, they are "comprehensive types." In this way *Eozoön* may, to some extent, comprehend the characters of *Rhizopoda* and *Spongiadae*. Without committing myself, however, to all the generalizations, frequently extremely hazardous, of the celebrated American geologist, I may remark that all this is perfectly compatible with the doctrine of descent with modification, and that that hypothesis is the only one yet propounded which satisfactorily explains these alliances.

I find myself completely borne out in my views on the nature of *Eozoön* by the discovery by Principal Dawson of siliceous spicules in the cells of that organism. It is true, that able palæontologist attributes these spicules to a sponge which has filled the cells of *Eozoön* subsequently to the death of the latter. But I think, in view of the resemblance between the structure of *Eozoön* and that of the boring sponges, that the hypothesis of Dr. Dawson is wholly unnecessary, and that there is no difficulty in attributing the spicules to the *Eozoön* itself.—I am, Sir, your obedient servant,

R. LECHMERE GUPPY.

PORT-OF-SPAIN, TRINIDAD,
3rd June, 1867.

SHELLS ON THE GREAT ORMESHEAD.

To the Editor of the GEOLOGICAL MAGAZINE.

DEAR SIR,—In the paper on "*Glacial Action near Llandudno*," in the July number of the Magazine, Mr. Bonney (page 290) notices the occurrence, in the surface deposit at Gwydyf, on the Great Ormeshead, of quantities of shells. It is worthy of remark that there are none but those of eatable species,—*Patella vulgata*, *Littorina littorea*, *Mytilus edulis*, *Ostrea*, and *Tapes*. I obtained examples here in November, 1864, when their extreme profusion, and the way in which they occurred, convinced me that they had been brought there by the hand of man. I find from a section I made at the time, from the pier at Llandudno to the top of the Ormeshead, that the shell bed occurred at a height of 380 feet above the sea. The accumulations of the subaërial loam which covers it would seem to imply very great antiquity in relation to the human period; but it is evidently quite a different deposit to the Boulder-clay that occurs on the coast at the bottom of the valley, here limited to a range of about 170 feet above the sea (it terminates close to the lowest fence).

Similar clay with transported boulders forms a terrace of about the same height on the south side of the Head, and attains a somewhat greater elevation on the flanks of the Little Ormeshead.

Whilst suggesting that the Gwydyf shell-bed is of artificial origin, I do not wish to call in question the evidence Mr. Bonney brings forward in proof of Glacial action, as drift with transported and striated boulders is abundant in the neighbourhood, especially on the east side of Orme's Bay. There is also a good section con-