

CORRESPONDENCE.

THE LATE MR. EDWARD WOOD, J.P., F.G.S.

SIR,—Your obituary notice (GEOL. MAG. Oct.) of the late Mr. Wood, of Richmond, omits a circumstance in his life which the writer may not have known—but which ought not to be left unrecorded.

Mr. Wood was a man with a warm and feeling heart; and some years ago, when it was the fashion for ladies to wear seabirds' wings in their hats, gangs of merciless ruffians used to put out in boats from the coast towns of the north-east of England for the purpose of capturing the birds (which breed on Flamborough Head) while sitting on their nests. Not satisfied with this, they would often tear the wings from the bodies, retaining only the former, and throwing the latter into the sea.

During Mr. Wood's geological excursions he became a witness to this revolting practice, which he determined if possible to put an end to. He foresaw that unless this was done the whole race of seabirds on that coast would be exterminated. He immediately put himself in communication with gentlemen of influence in that part of the country, described with natural indignation what he had seen with his own eyes, and obtained their aid in bringing the matter before members of Parliament. He also went up to London and had interviews with members of the Government and of both Houses of Parliament, and at length had the satisfaction of seeing a Bill carried into law, for the protection of sea-fowl during the breeding season. All who love the feathered tribes, therefore, owe a debt of gratitude to Mr. Wood, of Richmond, Yorkshire.

DUBLIN, 14th October, 1877.

E. H.

TRIPARTITE ORIGIN OF THE BOULDER-CLAYS OF THE NORTH WEST OF ENGLAND.

SIR,—From repeated examinations of a number of constantly varying sections around the estuaries of the Dee and Mersey, I have been led to adopt the theory of a tripartite derivation of the constituents of the two Boulder-clays—the normal *sand and coarse grit* from the *local* Triassic, Permian, and Carboniferous sandstones; the abnormal *clay* (of which the deposits mainly consist) from “mud” issuing from beneath glaciers (chiefly in the Lake District) when they descended as low, or nearly as low as the sea-level; the equally abnormal *erratic stones* transported and dropped into the slowly accumulating clay by floating coast-ice, the sea having been too shallow to float icebergs, which indeed would either directly or indirectly have disturbed the surface of the middle sand (which, away from the mountains, almost invariably indicates the prevalence of extremely tranquil conditions) when the upper clay began to be deposited. The *clay* may have been partly worked up from the local shales and so-called marls, but its wide distribution, general uniformity of character, and great amount, are clearly incompatible with the idea of its having been mainly of *local* derivation.

The above theory of the tripartite origin of the Boulder-clays will explain many facts which, at first sight, are calculated to puzzle the observer, and make him think that there is no constant order of succession in the drift-deposits of the north-western plain. The current-distributed subglacial clay could not, everywhere, have been equal in amount. It is indeed reasonable to suppose that in various places, and at various times, there would be a partial or even entire failure in the supply of this clay, so as to leave the sea nothing to deposit but loam, sand, or coarse local grit, which would often contain few or no erratics, as the currents which would bring the clay would likewise be the principal carriers of the floating coast-ice (part of which, however, would appear to have been blown in aberrant directions by wind).

In the lower clay, there is often a change in its character *upwards*, as if the supply of subglacial clay and erratic stones had been diminishing; in other words, it often becomes less stony, and more intercalated with loam or sand towards its junction with the *non-glacial* middle sand. This indeed might be expected on the supposition that the lower clay and middle sand were deposited during the same submergence.

The tripartite theory likewise explains the degeneracy of the clays *southward* from the source of supply; and *upward* on the hill-slopes where the clays gradually become more earthy and local in their character; for the progress of the submergence must have melted the ice upward, so as to limit its extent and consequent power of supplying subglacial clay.

D. MACKINTOSH.

COLOURING OF OOLITIC ROCKS.

SIR,—An excellent illustration of Professor Judd's remark on the colouration of the Oolites, quoted at p. 480, from "The Geology of England and Wales," may be now seen in a cutting on the Midland Railway to the north of Kettering. The bed is very low down in the Inferior Oolite, doubtless part of the Northampton Sands. It seems to be (I have only noticed it from the train, but I believe it identical with rock I have elsewhere examined) a soft sandstone, perhaps calcareous. Vertical joints divide its beds into blocks, so that there is a rough resemblance to courses of masonry. Sometimes these blocks are wholly brown; but in other cases the heart of a block is blue-grey, while the exterior for several inches is brown: so that it is evident that the former was the original colour, and that atmospheric water, as may be seen in so many other cases, has converted the pyrite (or, what is here more probable, the carbonate of iron, *vide* Judd, Geol. Rutland, p. 136) into limonite. The effect produced by this change along the planes of bedding and of jointing is very singular, something like masonry exceedingly coarsely pointed.

T. G. BONNEY.

ERRATUM.—In the Rev. T. G. Bonney's article, GEOL. MAG. Nov. 1877, p. 499, lines 8 and 14, for "Hungary," read "Bohemia."