

Silurian Graptolites; and, finally, the fact that their equivalents are everywhere separated from the equivalents of the Wenlock Rocks by the main mass of the Middle Silurian, leaves us no choice but to assign them to the Lower Llandovery. CHARLES LAPWORTH.

St. ANDREWS, Sept. 9th.

SECTION OF BOULDER-CLAY, NORTH DOCKS, LIVERPOOL.

SIR,—The sections described by Mr. Mackintosh in the September Number of the GEOLOGICAL MAGAZINE are, as he says, well worthy of study. They were visited by the Liverpool Geological Society in June last: at that time the section showing the Lower Boulder-clay of Mr. Mackintosh was well developed. It was simply a clay containing more stones and of a harder nature than usual, separated from the clay above, which is more plastic and free from stones than is generally the case, by a seam of sand and gravel. Several of our members were rejoiced at having at last discovered that for which they had previously for years searched the neighbourhood in vain, viz. the veritable Lower Boulder-clay. I ventured to doubt if the section before us was sufficient evidence to support the tripartite division of the Boulder-clay now in fashion; and I expressed the opinion that the distinction would not be maintained over any considerable area, and that the lower clay was simply a local variation of the upper; in fact, that the deposit was one and the same. A short time since I again visited the Docks, this time in company with Mr. Bristow, Mr. Aveline, and Mr. De Rance. The latter gentleman, who is well acquainted with the excavations, was desirous of showing us a section of some curiously contorted gravels, and took us to the exact site of the previous Lower Boulder-clay section, but—though certainly not to my astonishment—both contorted gravels and Lower Boulder-clay had disappeared. The fact is, the beds are thrown about so irregularly that there is no dependence to be placed on their continuity. A few yards more or less of excavation changes their character so, that what before appeared separate and distinct beds shade into one another by imperceptible gradations, thin out, or, as not uncommonly happens with beds of sand or gravel, stop short off with a square end. My friend Mr. De Rance, if my memory serves me, also expressed the opinion that there was no Lower Boulder-clay in the dock. So far as the Boulder-clay deposits about here affect the question, I have arrived at the mature conviction, after long study, that between the red sand or rock on which they rest and the surface they are an unbroken series of marine deposits, laid down during the subsidence of the land and its subsequent re-elevation, and that for an explanation of the curious manner in which they are bedded we must look to the varying directions of the tidal currents as affected by the degree of submergence at the time, and the contours of the then land.

4, SOUTH JOHN STREET, LIVERPOOL, Sept. 12th. T. MELLARD READE.

ERRATUM.—In Mr. BONNEY's letter, p. 377, lines 30, 31, from top of page, for "therefore it is to be applied," read "it is *not* therefore to be applied."
Dr. OLDHAM begs us to delete, at p. 384, the letters C.B. after his name. We apologize for the error. EDIT. GEOL. MAG.