

211 St Michael's Terrace,

Birkenhead, 4th Jan. 1872.

Dear Sir, I am much obliged by the receipt of a part of your memoir on the Post-pliocene drifts of N. America. Before now you may have seen a paper by me in the Fed. Mag. on North Wales. I believe the Editor is wrong in disputing the organic origin of the calcareous incrustations on stones in the up. boulder-clay.

In the Lower Boulder-clay of this neighbourhood (in Cheshire) sea-shells, especially the Terebratella terebra (Communes) are far from being rare, and I fancy it looks as much like a glacial deposit as any I be met with in the world. Mr.

Hull is inconsistent with his formerly published opinions, in regarding the lower boulder-clay of Lancashire, Cheshire, and Cumberland, in the words of the N. of England, as chiefly a product of land-ice

In his paper in the Mem. of the Lit. and Phil. Society of Manchester (vol. II. This series - 1863-64) Mr Hull (speaking of the two boulder-clays, lower and upper - of South Lancashire and North Cheshire) says "Both subdivisions [lower and upper clays] are also laminated or rudely stratified. On this point Prof. Ramsay and myself became convinced after a careful examination of many sections, some near Manchester, others along the estuary of the Mersey." Further on he says "Professor Ramsay suggests to me that a more simple explanation [of the slope of the Drift formation] might be found in the unquestionable fact that these various beds of clay and sand were deposited over a sloping sea-bottom."

Fancy, though I am not quite sure, that Mr. Hull must now mean ~~that~~ that the boulder clay of comparatively high levels only was accumulated under land ice - an idea he may have borrowed from a very young and precocious geological surveyor, Mr. De

Rance who is very clever, but who, like the majority of the Surveyors in England, has not had time to acquire maturity of judgment.

Looking forward to the pleasure of seeing your remaining observations on the drift of your country,

I am, Dear Sir,

Yours very truly,
J. Mackintosh.

I remember reading a paper on the marine origin of the Bainham Rocks (Millstone grit) of Yorkshire, at the Meeting of the British Association at Birmingham when you were present. I am not sure you were there exactly at the time when my paper was read, but I remember your reading or rather delivering a paper. Sir R. I. Murchison was in the chair.

MacKintosh
July 192

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