

by the Rev. O. Fisher, in your last Number. As that gentleman expresses the opinion that my views are based on work "in the library and museum," I may be permitted to state that for more than twenty years I have devoted much time and labour to the study of the section in question. During that period I have measured it down, bed by bed, at least a dozen times, and it may be some comfort to my critics to inform them that the results arrived at, on various occasions, differ almost as greatly as do theirs from one another, and from the earlier sections of Dr. Wright, the Geological Survey, etc. Indeed, as I have stated in my paper, my prolonged study of the section has impressed me with a profound distrust as to the constancy of particular bands in these variable estuarine deposits. It is true that in addition to working at the English sections, I have visited the deposits of equivalent age in France, Belgium, Germany and other countries, that I have examined very large collections made from these deposits, and placed in Continental museums, and that I have even gone so far as to carefully study the works of foreign geologists which bear upon the question. But I hope that Mr. Fisher is the only geologist who will regard such action as constituting a disqualification on my part. In conclusion I must express my regret that your correspondent has such a poor opinion of the natives of the Isle of Wight as to suggest that the amenities of controversy are not to be expected from them. My ancestors for many generations lived in the island, and though, owing to circumstances over which I had no control, I cannot claim the distinction of being a native myself, yet I feel almost as jealous of any slur being cast upon their good name, as if I had not been born, just across the Solent, in the adjoining island of Great Britain. JOHN JUDD.

LAURENTIAN ROCKS OF DONEGAL.

SIR,—Permit me to withdraw the last paragraph in page 132 of my letter which appeared in the GEOLOGICAL MAGAZINE for March, and to express regret for having allowed myself to pen it.

GEOLOGICAL SURVEY OF IRELAND,
14, HUME STREET, DUBLIN, 8th March, 1882.

EDWARD HULL.

RATE OF DENUDATION OF THE LAND BY RIVERS.

SIR,—In answer to your correspondent, "McJames," writing from India, in your March Number, I may remark that Prof. Hopkins only published one paper on the "Transport of Erratic Blocks," and if your correspondent had referred to that paper he would have seen my calculation was correct, see page 233, vol. viii. Cam. Phil. Trans. line 3. Mr. Hopkins writes: "Therefore the moving force of a current, estimated by the volume of weight, of the mass, of any proposed form, which it is just capable of moving, varies as the 6th power of the velocity." As 729 is the sixth power of three, my calculation in your journal of an increase of 729 times was therefore perfectly correct, although by a printer's or a clerical error, the fifth power of 3 was inserted instead of the sixth power of 3.

In answer to question 1, I would refer to Phil. Mag. 1874, page 205, also to pages 446, 467, GEOL. MAG. Dec. II. Vol. II. 1875, for my formulæ of increase of velocity of water with increase of quantity flowing, although slope is not altered. In answer to question 2, the Pluvial period is described, page 105, Quart. Journ. vol. xxiv. 1868, Tylor, Amiens Gravel. In answer to question 3, Hopkins's paper referred to is line 3, page 233, vol. viii. Cam. Phil. Trans. In answer to question 4, I explained in my letter how I arrived at the velocity being three times greater in the Pluvial period. But on page 63, vol. xxv. Quart. Journ. 1869, I give some cases in which the water flowing must have been 129 times greater than at present. At page 9, *op. cit.*, I suggest a rainfall of 300 inches in the Pluvial period.

I would also recommend Mr. McJames to read Login on the Ganges Valley, who refers to my papers in the Quart. Journ. Geol. Soc.

With regard to a wet period, M. Belgrand, of Paris, in his great work on the Gravels of the Seine, found, in 1871-2, that it was impossible to explain the size of the valleys and the deposits of gravel, without assuming a wet period in which the rainfall was twenty or twenty-five fold that at present in that part of France, thus confirming my view published in 1868. By the equation, page 467, Vol. II. Dec. II. GEOL. MAG. the velocity increases the cube root of the increase of the quantity. If the rainfall was as stated by Belgrand and myself, the velocity of streams should be three times as much as at present, and the moving force would be as the sixth power. Then $3^6 = 729$, that is to say, where a stone now of 1 lb. weight can be moved, a stone of 729 lbs. weight could then have been lifted. In the Upper Ganges, running through a great gravel formation, the water-level never reaches now within 30 feet of the top of the banks. India exhibits the proof of a former Pluvial period.

LONDON, *March 11, 1882.*

A. TYLOR.

SUPPOSED LAURENTIAN ROCKS.

STR,—When I received the March Number of the GEOL. MAG., I learned that the Philistines were upon me; but as I have so little time to spare, that I cannot even read the papers, my letter must necessarily be short.

Dr. Callaway visited the Wexford district without my maps, and left the most important sections unvisited, and that he does not know my work is evident from what he has written about it. I suggested he should visit West Galway; because, in that country, he would find the rocks so well exposed that his supposed unconformability in the Wexford rocks southward of Greenore would be then explained. I cannot understand where he obtained the obsolete maps; as, after my maps of the Wexford district were published, I could not obtain copies of the old ones from any of the authorized Irish publishers.

To Professor Hull's letter it is unnecessary to make any reply.

GOREG, *March 6th, 1882.*

G. H. KINAHAN.