

Pacific side and their ejecta built a dam across the outlet of the gulf, thereby forming the lake basin. As this dam increased in height the waters behind it were raised until they overtopped the continental divide and escaped to the Atlantic, forming the present San Juan. The region has suffered a recent depression by which the rivers were drowned, and their estuaries thus formed have since been silted up.

WM. F. MORSELL.

DISCUSSION AND CORRESPONDENCE.

MATTER, ENERGY, FORCE AND WORK.

TO THE EDITOR OF SCIENCE: In the generous and appreciative review by Professor Mendenhall (in SCIENCE, p. 24, January 6) of my book on 'Matter, Energy, Force and Work' there occurs a line to which I would like to advert briefly. "'The something' which distinguishes *substance* from *matter* is *energy*. 'A definite quantity of substance consists of a definite quantity of matter in permanent association with a definite quantity of energy or motion.' The two words 'or motion' render this statement somewhat obscure. What is meant by a 'definite quantity of motion?' Professor Holman's definition of motion is that of nearly all writers, namely, 'change of relative position.' It is a curious but common practice to define it in this way and then to define its 'quantity' by associating with it something (matter, mass) absolutely unlike it in every respect. It is certainly not in this sense that he means to use it in the phrase above quoted."

I desire to express my assent to this comment and to reply to the query therein contained, or rather to remove, if I may, the obscurity. This result will, I think, be effected if for the words 'of motion' in the description of substance be substituted the phrase: *or permanently endowed with some definite mode of motion*.

May I also add, to preclude possible misapprehension, that the proposition 'Continuous, uniform, and permanent occupancy of space,' quoted at page 25, is one which I do not advance as a definition of matter, or as a logical deduction from known premises, but only as a possible view of matter if the *unproved* hypothesis of the kinetic nature of all energy be adopted as a step in the inference.

With sincere thanks for your courtesy in presenting this review, I am

Yours truly,

SILAS W. HOLMAN.

BROOKLINE, MASS., January 17, 1899.

ZOOLOGICAL BIBLIOGRAPHY.

TO THE EDITOR OF SCIENCE: Dr. Dall's 'tolerably active and rather long experience' has been singularly blessed if he has never met with an advance copy of a paper issued at an uncertain date, not offered for sale, and conflicting in its contents with some other paper offered for sale at a known date about the same period; if he or the libraries he frequents have always been able to purchase without a delay of more than one year the new books or pamphlets that he wanted to see; if he has always had so much as a printed postcard in reply from authors whose works he has sought in exchange for his own; and if he has always been able to find the address of every writer with whom he wished to communicate. A restricted and short experience has acquainted me far too thoroughly with all these difficulties, but, as this is not an autobiography, the details need not be inflicted on your readers. Dr. Dall shall have them if he wishes.

Apart from his scepticism, Dr. Dall appears to agree, at least in spirit, with the proposal that he has now twice criticised. But two remarks of his seem to call for reply.

My committee has not yet definitely pronounced on the question: What constitutes publication? But it is safe to say that it does not regard printing as publication, and therefore sees no great value in placing 'the actual date of printing' on every signature. This, too, may be said: That a *British Association Committee* would never recommend an author to sell his papers without an express agreement with the society that has been at the expense of setting up the type, and perhaps of drawing the plates. In our country this may be done, but it is not regarded as particularly creditable to the author that does it. Customs are, no doubt, different elsewhere; but our proposal was an attempt to render the speediest possible publication compatible with commercial morality as recognized here. Perhaps it is this