

53 (15 October 1891) 302

Geodesy.

By J. Howard Gore, Professor of Mathematics in Columbian University. [The Riverside Science Series.] Boston: Houghton, Mifflin & Co. 1891.

CSP. identification; MS 1365. See also: Burks, *Bibliography*. This note is unassigned in Haskell's *Index to The Nation*, vol. 1.

James Howard Gore (1856-1939) was a noted authority on geodetics and mathematics. He served as commissioner-general to the international expositions at Antwerp, Amsterdam, and Brussels. He was president of the Philosophical Society of Washington, and secretary of the American Meteorological Society. He was the author of three books on geodesy and a series of mathematics text books.

Of Prof. Gore's competence to treat of ancient geodesy, it is sufficient to say that he makes Sanskrit the scientific language of Chaldæa. But he is well informed in regard to the modern history of higher geodesy, and writes his own language with unusual grace and ease. A less promising subject for popularization than that which he has chosen could not be conceived; but in a space equal to ninety pages of *Harper's Magazine* he has contrived to sketch its history in a manner which will carry along any reader with a taste for questions of precision. He does scant justice to our Coast and Geodetic Survey, and to the manner in which it has been supported by our Congress. No man of sense or of conscience in the position of Bache, Peirce, Patterson, or Hilgard, could have asked the Government to measure an arc of the meridian from Canada to the Gulf. As much as it was right to ask was asked for and accorded; and the works of these geodesists will, when completed, constitute a great contribution to our knowledge of the figure of the earth. It is a problem which was steadily pursued by them, as it is by the present head of the Survey.

53 (22 October 1891) 313-314

THE LAW OF "VIS VIVA"

The reply to Hoskins' letter is surely by Peirce, since the review of Spencer was by Peirce. See also: Fisch, *First Supplement*. This reply is unassigned in Haskell's *Index to The Nation*, vol. 1.

Leander Miller Hoskins (1860-1937) was graduated from the University of Wisconsin in 1883, where he continued as assistant professor of mechanics and mathematics. In 1892, he began teaching applied mathematics at Stanford and held this chair until he retired with the title, Professor Emeritus in 1925.

TO THE EDITOR OF THE NATION:

SIR: In your review of Herbert Spencer's 'Essays: Scientific, Political, and Speculative,' occurs the following sentence:

"Besides, the law of *vis viva* is plainly violated in the phenomena of growth, since this is not a reversible process."

The words "law of *vis viva*" seem from the context to be used as synonymous with "law of the conservation of energy." Does your reviewer really mean to assert that in the phenomena of growth we are presented with a *plain* violation of

the law of the conservation of energy? Such an assertion would be so astonishing that I cannot refrain from asking for further explanation. L. M. HOSKINS.
MADISON, WIS., October 12, 1891.

[It ought not to be necessary to remind a professor of mechanics in a reputable university that the law of *vis viva* was familiar to mathematicians for much more than a century before the law of the conservation of energy was heard of. The one is a principle of molar mechanics, the other of general physics. The kinetical theory of matter, which is intimately associated with, but is not involved in, the law of the conservation of energy, supposes that when the motions of molecules are taken account of, the law of *vis viva* is not violated in the action of viscosity, etc., where; considered as relating to *molar* motions, it is violated. As we referred to this, there is little excuse for saying that our context seems to confuse the two propositions. But since our correspondent is astonished at our saying that growth is an irreversible process, and therefore plainly violates the law of *vis viva*, and since, as professor of mechanics, he is familiar with the theorem that every action under a conservative system of forces is reversible, it appears that he would say that growth (including reproduction and the evolution of new species) is a reversible process in the sense in which the actions of viscosity, etc., are not reversible.

We said nothing about the law of the conservation of energy, which is the grandest discovery of science. Still, as a scientific generalization, it can only be a probable approximate statement, open to future possible correction. In its application to the ordinary transformations of forces, it has been pretty exactly verified. But as to what takes place within organized bodies, the positive evidence is unsatisfactory, and, in connection with the question of the will, we cannot feel sure the principle holds good without assuming a partisan position which would be unwise and unscientific. In an age when the axioms of geometry are put in doubt, it would not be astonishing to hear any physical principle challenged; but we repeat that our remark looked only to explaining the irreversibility of growth, in the same way in which inorganic irreversible processes are explained, by the application of probabilities and high numbers.—ED. NATION.]

53 (12 November 1891) 372

ABBOT AGAINST ROYCE

TO THE EDITOR OF THE NATION:

SIR: Dr. Francis Ellingwood Abbot makes substantially the following charges against Prof. Josiah Royce:

(1.) That Prof. Royce libelled Dr. Abbot, and that maliciously.

(2.) That Prof. Royce used unfair means to stifle Dr. Abbot's reply.

I propose to consider impartially what the verdict of students of philosophy ought to be regarding these public accusations against one of the most eminent of their number.