

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 geodesics 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 Chaldaea. 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.

The charge of libel has two specifications, viz:

(1.) That Prof. Royce warned the general public against Dr. Abbot as a blatant and ignorant pretender in philosophy.

(2.) That Prof. Royce accused Dr. Abbot of plagiarizing Hegel at second hand.

From the point of view of propriety of conduct in a student of philosophy, the only adequate excuse for the first of these acts would be that the fact proclaimed was so unmistakable that there could be no two opinions about it on the part of men qualified by mature study to pass judgment on the merits of philosophical writers. In case the act were not so justified, the offence would be enormously aggravated if it were dictated by malice. The first question, then, is: Did Prof. Royce, as a matter of fact, so warn the public against Dr. Abbot? He certainly did, unequivocally and with full consciousness of what he was about; that is the unmistakable import of his whole article in the *International Journal of Ethics* for October, 1890. The next question is whether it is so plainly true that Dr. Abbot is a blatant and ignorant pretender in philosophy that it is impossible competent men should think otherwise? So far is that from being the case that philosophers of the highest standing, such men as Kirchheiss in Germany, Renouvier in France, and Seth in England, have drawn attention to the remarkable merit of his work. I am not personally intimate with Dr. Abbot, and am far from being a partisan of his doctrines, but as an humble student of philosophy, endeavoring to form my estimations with the eye of truth, I recognize in him a profound student and a highly original philosopher, some of whose results are substantive additions to the treasury of thought; and I believe that the prevalent opinion among competent men would be that Prof. Royce's warning is an unwarranted aspersion. Next, what excuse was there for such conduct, what motive prompted it? Prof. Royce and Dr. Abbot have their rival ways out of agnosticism. Both start from the same premises to come in the main (at least, so Royce says) to the same conclusion. Shall we say, then, that a passer-by cannot loiter near Dr. Abbot's shop, attracted by the placard, "THE WAY AND THE TRUTH," without Prof. Royce's rushing out and shouting from across the street that he can offer the same article at a lower figure? No; for how far a spirit of rivalry may have influenced him no man can know, Prof. Royce least of all.

Passing to the second specification, we ask: Did Prof. Royce accuse Dr. Abbot of plagiarizing Hegel? No; he only accused him of giving a maimed version of Hegel's theory of universals, naïvely supposing it to be a product of his own brain. That was no libel in the sense now considered. But, says Dr. Abbot, I have stated so clearly the antithesis between Hegel's view and mine that Prof. Royce cannot be sincere in saying they are identical. No matter; the more absurd the accusation, the less injurious; the less the truth, the less the libel. On this count Dr. Abbot is entirely in the wrong.

Passing to the second charge, we ask whether Prof. Royce used unfair means to stifle Dr. Abbot's reply? The ex-parte evidence indicates that he did contrive that Abbot's reply should be first postponed (as postponed it was over two numbers of the quarterly), and at last, as the third quarter was drawing to a close, should be excluded; in which performances Dr. Adler, the editor-in-chief, does

not appear as very strong in the practical department of ethics. Afterwards Prof. Royce, through a lawyer, threatened Dr. Abbot with legal proceedings if he published his proposed reply at all.

All this would be abominable to the last degree in the case of a philosophical discussion. But then it must not be forgotten that the contention had never had that character. Prof. Royce's article was written with the avowed purpose, clearly and openly conveyed, though not by direct declaration, of ruining Dr. Abbot's reputation; and what little discussion there was was merely to subserve that purpose, not to ascertain or prove any truth of philosophy. Thus, it was a brutal, life-and-death fight from the first. Prof. Royce clearly perceived this, for he ends the article by saying that he shows no mercy and asks none! That's ethics. And his subsequent proceedings make it, in my judgment, as plain as such a thing can be, that his cruel purpose never left his heart. Dr. Abbot, on the other hand, stood like a baited bull, bewildered at such seemingly motiveless hostilities.

It is quite impossible not to suppose that Prof. Royce conceived it was his duty thus to destroy Dr. Abbot's reputation, and with that the happiness of his life. A critic's stern and sacred duty, and all that! Besides, it must be remembered that he is a student of ethics; and it is not to be imagined that a person can study ethics all his life long without acquiring conceptions of right and wrong that the rest of the world cannot understand.

C. S. PEIRCE.

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NOTES

This note is surely by Peirce, inasmuch as it is a continuation of the "vis viva" dispute that began with his review of Spencer. This is unassigned in Haskell's *Index to The Nation*, vol. I.

—Prof. Hoskins sends us a rejoinder on *vis viva* too long and irrelevant to print, nor is the discussion, by its nature, exactly suited to our columns. Instead of showing how he could maintain that growth is not an irreversible process in the sense in which the action of viscosity is irreversible, he holds that an irreversible process does not violate the law of *vis viva*. But an irreversible process is such that if the final velocities have their signs reversed, the equations of motion will not be satisfied by the movement of all the particles back over their previous paths with the same (reversed) velocities. Now the equations will be so satisfied unless the forces are changed by this reversal of the velocities—that is, unless they depend on the velocities. Further, if the accelerations depend on the velocities, it is easily shown that the *vis viva* cannot always be the same in the same configuration, and thus the equation of *vis viva* is violated. Therefore growth, so far as it is an irreversible process, violates this principle. It is true that the kinetical theory explains not only irreversible processes (for which it was needed), but also reversible ones (which is supererogatory). But our correspondent is surely mistaken in saying that a similar apparent violation of the law of *vis viva* admits of any acceptable explanation not based on probabilities. Friction, viscosity, diffusion, conduction, in all states of matter must be so explained.