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HE COMETH AFTER HIS CRITICS AND SEARCHETH THEM -- SPENCER'S STANDING IN SCIENCE--HIS THEORY OF EVOLUTION--"OUTSIDER" IS AN INQUIRER, NOT AN ASSAILANT.

To the Editor of the New-York Times:

I am an individual who three weeks ago gave utterance in your columns to questions weighing on me respecting Herbert Spencer's philosophy. I wanted a lesson. I did not argue, except so far as was necessary to setting forth my doubts. I simply begged to be informed what the special students of the different branches of science upon which Spencer has written books and papers really think of his work in its relation to their several studies. It is now time I should express grateful thanks to the gentlemen who

have kindly responded to my appeal.

Above all they are due to the eminent biologist, Prof. Osborn, for his truly admirable paper last Sunday. Though many of your readers have, I am sure, perused it more than once, they will not blame my calling to their minds a few of his pregnant sentences in altered collocation. Prof. Osborn fully comprehends the essence of Spencerianism. It is not that nature and man are the result of evolution; for that had been said before by biologists, and, let me add, by wide-swaying philosopers as well. But what characterizes Spencerianism is the doctrine that evolution is purely mechanical. As Prof. Osborn well says, Spencer holds that "an organism is a machine, self-lubricating, constantly repairing all effects of wear and tear, with its internal relations constantly adjusted to its external relations." In Spencer's biology "all the processes which living matter has in common with non-living matter are magnified, all the processes peculiar to living matter are minimized."

We learn that there is "perhaps a large class of original investigators who have little respect for the hypothetical anatomy of Spencer," who "has never claimed to be a practical investigator." But, says the Professor, "every great leader in biology has gone directly to nature as the source of his inspiration," and "all permanent advances in the solution of the marvelous phenomena of life come from original thinkers in the laboratory and the field." Accordingly, Prof. Osborn has not implicit confidence in the permanent value of Spencer's work. "The sum of several works of transient value does not foot up to one work of permanent value." "It appears now as if Weismann's discoveries would mark an epoch in the history of the evolution theory." Weismann contends that acquired characters are not transmitted, and "it is perfectly evident that if they demonstrate this proposition one great section of Spencer's philosophy falls to the ground." Spencer has mainly been merely a follower of Lamarek in biology, though a follower with independent thought. Nevertheless, "many of his purely hypothetical deductions have been confirmed by the very latest discoveries," and Sedgwick writes from a laboratory where non-specialist generalizers are not objects of admiration that "Herbert Spencer's view of the origin of the nervous system may perhaps not be so far from the mark as at first sight appeared." All these judgments carry conviction to an outsider of fair-minded justice and truth. Some of my doubts they dissolve, but the more ponderous they greatly strengthen.

Another gentleman, Mr. H. J. Messenger, Jr., of the Department of Mathematics in New-York University, comes forward to inform me regarding Spencer's competency from the mathematical standpoint. To this gentleman also thanks are due. He gives as a reason why Mr. Spencer has not been elected foreign associate of scientific academics that his religious views are not sufficiently orthodox. I am surprised to hear that the academies of Paris, Berlin, and St. Petersburg insist so strongly on orthodoxy. Chancing to-day upon a volume of the "Transactions of the Royal Society of Edinburgh"--a city where, if anywhere, theology should weigh--among the nineteen names selected from all the philosophers of England and Ireland to receive the distinguished

honor of membership in the Edinburgh Society, I found, to my surprise after the information accorded by Mr. Messenger, that of Huxley, although Huxley is, if anything, more heterodox than Spencer, (whose name, of course, was not there.) In the list of thirty-six foreign associates, a list formed with the utmost care, whom should I find but Haeckel, a notorious infidel! Of course Mr. Messenger, who comes forward as an expert, is intimately acquainted with the great academies, in their personnel and spirit, but without his positive testimony I should have hardly believed that they would proscribe great scientific men because they were agnostics. What bigots the European scientists must be! In this country the clergy contains the most numerous class of readers of Spencer.

Mr. Messenger is so good as to report what "the professor of chemistry in one of our leading medical colleges" thinks of Herbert Spencer. I suppose the first rank of theoretical chemists is connected with the larger universities, with governmental institutions, and with great manufactories, so that "the professor of chemistry in one of our leading medical colleges" might chance not to be the kind of man whose testimony would be the most valuable. Nevertheless, we may listen to it. It is that the first volume of Spencer's Biology contains a "very large number" of predictions in chemistry which recent laboratory investigations bear out. I should not have estimated at a "very large number" all the chemical remarks in the volume; of those, the greater part seems to express known truths, and of the rest many are glittering and slippery generalities, hard to transfix.

Mr. Messenger declares, as a mathematician, that "he has read Mr. Spencer's writings with considerable care and completeness," and "has not been able to find any" mathematical errors in them. He says he shall be glad to have any such pointed out. I thought I had already pointed out something that looked like a mathematical error, though it seems to have escaped Mr. Messenger's scrutiny. Namely, suppose all the molecules in the universe to have the positions which they actually have at any moment, but suppose them to have all precisely the reverse velocities. There is nothing in those positions or in those velocities contrary to the principle of the persistence of force. But it would follow from the same principle that, going on from that instant, history would be the precise reverse of what it actually had been up to the instant when all the particles actually had those positions. Such a backward motion of all history would then be perfectly consistent with the principle of the persistence of force. But Mr. Spencer, after defining evolution, &c., says: "All these phenomena, from their great features down to their minutest details, are necessary results of the persistence of force." One phenomenon of evolution actually observed is that eggs grow to birds, not birds back to eggs. Yet this cannot be a mathematical consequence of the persistence of force, since, on the contrary, the reverse proceeding would be perfectly consistent with that law. Is there no mathematical error here? If there be, is it not a fundamental one? Does not its correction show at once that evolution has not that mechanical nature which it is the great distinguishing

No other scientific adept seems to have favored me with answers to my questions, unless such be Mr. Edgar R. Dawson, who vouchsafes me little instruction, but subjects me to severe catechizing. The first asks: "Is it necessary for us to change our method of reasoning when we drop mathematics, for example, to take up chemistry?" How can I answer that, indeed? What a pity the authors of those great treatises or methods of reasoning which have distinguished our age had not bethought them of this sock-dologer of a question before indicting their un-Dawsonian books! The next challenges me to "state any way in which one is more likely to arrive at truth which cannot be reached by exact science" than in adopting from all beliefs "that portion which all men admit, the most learned as well as the most ignorant." I reply: If we all hold to any given position without shadow of doubt--all from Edgar R. Dawson down to lowly "Outsider"--I do not think there is any possible way of arriving at that position where we appear already to be. At the same time, I must tell you, Mr. Editor, that, for my humble part, when I find a belief has no better warrant than a general tendency to believe in it, I am very apt indeed to turn it over in what I call my mind, and to commence doubting it, very strongly, and my doubt, once set in, does not yield to certification that others believe it if I know they have no other reason for believing it than the Spencerian one that they do believe it. If Mr. Dawson, however, insists on inquiring for a likelier way of arriving at truth, I can only say that a better way, as it seems to me, would be to keep one's eyes and ears open, and if that way does not teach me about the Absolutely Unknowable, I fear I shall have to go disgracefully ignorant of that branch of learning.

Another question is whether "astrology can properly be said to have had an existence since the rise of exact science." Exact science took its rise with Hipparchus and Archimedes; astrology was practiced by all astronomers from Ptolemy to Kepler, inclusive, themselves two of the greatest scientists that ever lived. Again, "Does 'Outsider' expect Mr. Spencer to start with nothing and explain everything? Does he admit no necessary truths?" Following the greatest students of the theory of cognition, I am disinclined to admit any proposition as absolutely necessary. I would not absolutely require philosophy to start with nothing, though some systems do this, but I should think it very hazardous to commence with a hard and fast set of "first principles." I should certainly demand some prospect of an explanation of so definite and regular a fact as the law of energy. I need not remind Mr. Dawson that philosophies which are far from "starting with nothing," and in this halting imbecility are not remote from Spencer's, do, nevertheless, give explanations of Matter perfectly rational and intelligible from their standpoint. I will touch on the question of explaining Space below.

One more question Mr. Dawson puts, more drastic, perhaps, than all the rest. I had said that, if all particles had their motions reversed, all the previous history would be run over backward, which I take to be a commonplace of dynamics, and he thereupon asks whether this would not suppose "that thereafter motion

would follow the line of greatest resistance?" Our mathematician, Mr. Messenger, will answer this authoritatively. Meanwhile, my impression would be that, if an electric current finds a certain wire to contain the line of lowest resistance in going from New-York to Philadelphia, that same wire would not necessarily be the line of greatest resistance for a current going from Philadelphia to New-York.

Having thus noticed those correspondents who have signed their names, (except Mr. "Carl Opperg," whose communication concerned "Kappa," not me,) I proceed to those who have given their initials. "W. H. B." wishes to place Matter on the throne of the intellectual heavens, a desire I cannot share, though it is entirely opposed to Spencer. "R. G. E." entertains the very lowest opinion of my intelligence. He answers my prayer for light by reviling me for a barking cur; and he even questions my sincerity, probably suspecting me of a clandestine worship of Spencer. Had I the honor of his personal acquaintance, such controversial atavisms would naturally have their zest. In actual circumstances they must be sacrificed. I think I agree in the main with what "R. G. E." says. He lifts his voice in favor of evolution, and I am altogether with him. I suspect he does not perceive that my dissatisfaction with Spencer is not that he is evolutionist, but that he is not evolutionist enough. He subordinates life to force; as to that, I venture to entertain my doubts.

"Kappa," delightful writer and good thinker, conveys his wisdom amiably, without cruel allusions to mental deficiency. He has a pleasant way of almost persuading me I know some of these things already. He says: "'Outsider' doubtless knows that there are two kinds of scientists--the specialist and the generalizer, or philosopher." Between you and me, Mr. Editor, I really had not known this at all. I thought, on the contrary, that scientific men attached such supreme importance to making inference and observation go hand in hand, the deduction of one hour checked by the observation of the next, and that serving as suggestion for the meditations of the following, that no class of non-specialists were recognized as scientific men. I know there was Herbert Spencer, but I cannot yet make out that he is a recognized scientist. Who are our generalizers in this country? I have heard of Prof. Cope, whose book is famous, but I am assured he is one of the foremost of paleontologists, a specialist of the specialists. There is Prof. J. P. Cooke, one of whose ideas, I believe, is destined to form one of the world elements of future philosophy; but he is, I am told, devoted to a special branch of inorganic chemistry. There are generalizing geologists of eminence. It is very creditable to our country to have produced so few, and those few so strong. But where are the non-specialist generalizers?

"Kappa" gives up Mr. Spencer's vox populi method of attaining truth, thus admitting his idol has feet of clay. But when I ask whether Spencer's system is logically put together or not, "Kappa" declares this "purely a new method of criticism. Readers who have to be told whether a system of philosophy is logical or not--" oh, well, they are in a truly pitiable condition! As nearly as can be estimated, down to the date of Mr. Spencer's first principles,

282 systems of philosophy had been given to the world, and each of these had, for certain, at least one reader, namely, the man who originated it. It is equally certain that in at least 282 out of these 283 instances, the one and only guaranteed reader proved unequal to the task of determining whether that system was logically put together or no. But it is easy to see that "Kappa" is a born critic himself, and that he consequently knows well enough--better than any of us--what a piece of work the logical critic of a philosophic system has in hand. It is not merely to ascertain the validity and estimate the probability of the different argumentations, though even this, in the field of philosophy, is matter, I fancy, for a serious student of methods of reasoning. But that is the least of the critic's task. He has, first, to seize the central idea and gist of the system, omitting nothing essential, inserting nothing accidental; second, completely to analyze this essence of the doctrine and take account of every element of thought belonging to it; third, to study each of these principles, to appreciate it, to find exactly what logical application can be made of it; fourth, to go through every part of the system and see whether every one of these principles has been applied in a completely thoroughgoing manner wherever it was applicable, and nowhere else; fifth, to examine whether every philosophical question has been included which ought to have been included; sixth, to consider what the system would become if its logical defects were to be corrected--whether it would be disrupted or only reformed, and, seventh, to compare it with other philosophies, existent and possible, so as to learn what its logical advantages and disadvantages may be. If "Kappa" finds all this so easy, please let him lend his aid to me.

"Kappa" and others seem genuinely confounded at my asking whether philosophy should not in our day be required to explain the properties of space. I am informed that all geometers now profess to understand that those properties might have been different from what they appear to be. Mathematicians no longer say that the sum of the three angles of a triangle are equal to two right angles, but only that it so nearly so that we cannot tell whether it be more or less. Though this view has not reached the text books as yet, I am told it is adopted with unanimity by mathematicians. Then why is it not reasonable to ask philosophy how the angles of a triangle come to sum up to two right angles as nearly as they do? There is nothing really incomprehensible or confounding in the question; it only seems so to Spencerians because in the firmament of their beautiful and wondrous system there happens to be a coal-sack just here. If my question about space seems to give every man of them symptoms of blind staggers, that seems to indicate a malady in their philosophy. The cognition theory explanation of space given by Spencer, to which "Kappa" refers me is no explanation in the sense intended. But really, in this day, I know not what polite epithet to apply to a theory of space which does not undertake to show why the propositions of geometry should be such as they are.

Finally, "Kappa" reads me a lecture about the logical function of explanation. His method of weighing the logical import

of a question before undertaking to answer it certainly commends itself to every thoughtful mind. But he concludes that "that which has never changed in our experience or in the experience of our long line of ancestors, beginning, say, with the jelly-fish, cannot be explained." I can see no good ground for this. Explanation is a rational account of things. It simply discovers and points out a reason or general principle, operative in nature to a given result. Does nature only behave regularly and reasonably while we have our eye upon her? The motions of the double stars are explicable by gravitation. Some of them may be so far distant that the light which reaches us left them before our revered jelly-fish existed. Does that vitiate the explanation? "Kappa's" principle makes a curious variety of nominalism repugnant to all science. It is also in downright conflict with Spencer, who undertakes to explain the evolution of the solar system from the primitive nebula, and, what is much more, makes life nothing but a cunning mechanism. Let it not be supposed I am attacking Spencerianism. An attack would be very different. At present I am only seeking light.

OUTSIDER.
