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# SPACE AND FORM.

## "OUTSIDER'S" REASONING CALLED "UN- SCIENTIFIC"--THE ORIGIN OF LIFE.

To the Editor of the New-York Times:

I have read with a great deal of interest the articles of "Outsider," and the various defenders and antagonists of the Spencerian system of philosophy published in the recent Sunday editions of THE TIMES. As a humble and admiring student of that system I was at first moved to essay an answer to "Outsider's" initial communication, but the very able and conclusive replies of "Kappa," "R. G. E.," and Prof. Messenger, published on March 30, left little to be said at that stage of the discussion. Subsequent communications from other sources, and especially "Outsider's" last letter, in which is repeated a glaringly unscientific assumption as yet allowed to pass unnoticed, have, however, so far altered the situation as to render necessary, it seems to me, a few clarifying suggestions.

First as to "Outsider." It is entirely within the bounds of temperate language to say that his attitude is unscientific and that his communications savor less of scientific discourse than of that peculiar feature of discussion which has been popularly exemplified in the tea-table card game of "logomachy." Of what account is it, for example, that Mr. Spencer has not received honors from colleges and scientific societies? Did Thomas Hunter receive honors from these for his transcendent discoveries in physiology? Did not the French Academy of Sciences fifty years after his death accept from one of its members as entirely new his crowning discovery that the red corpuscles in the blood are developed in the post-embryotic stage and that their function is to minister to the strength of the body? The most exalted degree that could be received by Mr. Spencer has been conferred on him in the widespread acceptance of his doctrines by the thinkers of the civilized world. But this is a digression. Let us meet "Outsider" on scientific grounds.

As birds are distinguishable by their feathers so are men's habits of thought by their language. "Outsider" has much to say about mathematics. How profound is his knowledge of that science it does not concern us here to consider, but it is pertinent to show that in dealing with space he falls into a bewildering confusion of ideas. Here is an example: "But space; does not space call for some explanation? Is not that a half-way philosophy which, in these our days, does not explain, or at least hold out some promise.

of explaining, why space is continuous, why it has such a wonderful uniformity in all its parts, why there are neither more nor less than three dimensions everywhere, why every closed curve can, by a continuous change of position, size, and form, be brought into coincidence with every other, and why the three angles of a triangle make exactly one hundred and eighty degrees, or at least so very closely so that we cannot tell whether they make more or less?"

I have italicized the expressions that indicate the confusion of ideas to which I would direct attention. It is a fundamental law of thought that the conception of parts involves the recognition of likenesses and differences. The likenesses and unlikenesses existing in the properties presented by matter form the basis of that classification which constitutes science or organized knowledge. Where there are no likenesses or unlikenesses there can be no recognition of parts. Space, which is known to us only by the absence of form, presents no likenesses or unlikenesses, and consequently has no conceivable parts. What sort of scientific conception, then, is that which "Outsider" displays when he speaks of space as having "such a wonderful uniformity in all its parts"? The answer of science must be a false conception.

But what are "Outsider's" conceptions of the parts of space? The context of the clause cited furnishes the answer. He goes on to speak of dimensions, curves, triangles, and degrees as parts of space, and that the slip is not one merely of the pen is proved by the fact that they are again so treated in his second communication, published last Sunday. Now, dimensions, curves, and triangles are properties of form, and the merest tyro in science ought to know that in their application to space they are simply mathematical concepts employed for our convenience in dealing with it scientifically. They are no more parts of space than are the surveyor's rod and line parts of the valleys or mountains he measures. Thus, we find that "Outsider" must clear his mind of a good deal of confusion before he can be in a position to ask whether Mr. Spencer fully understands his own theory.

A similar confusion of ideas is exhibited by "W. H. B.," who, in his communication published April 8, while professing to agree in the main with Mr. Spencer, finds fault with his limitations of the knowable and his definitions of matter and space. That this writer's ideas of matter, force, and space are hopelessly confused is shown by his definition of the latter as "indefinitely extended matter--an all-inclusive everything--in which room is made for extended thought and extended power as well as for an extended wooden yard stick," which is high-sounding nonsense. "What," he next asks, "is the antithesis of space?" If he had read science understandingly he would not have asked the question. The only conceivable antithesis of space is form. It is manifestly a waste of time to argue with a disputant like Carl Opperg, who asserts that "space is continuous or infinite because it is 'intended' to hold an infinite universe, and that if there was no infinite space there could be no infinite universe," but the instance is noteworthy as another example of the unscientific attitude of the Spencerian critics.

In Prof. Osborn's very able and very fair exposition of Mr. Spencer's standing as a biologist there is an implied rather than an expressed antagonism to what he called the mechanical factor of Spencer's theory of life.

The origin of life is one of the disputed questions of science, and one of the chief aims of the Spencerian system is its reference to natural agencies; that is, its explanation on scientific principles. That this effort is in harmony with the present tendency of scientific thought is shown by the celebrated declaration of Prof. Tyndall made about sixteen years ago, and which caused such a heated controversy at the time, that he saw in matter the promise and potency of every form of life. That life has been evolved from matter by the combined forces of nature operating under favoring conditions, without the intervention of supernatural agencies, may be galling to the conceit of men who fancy themselves created after the image of God, but it is in keeping with the observed facts which constitute that great body of exact knowledge which we call science. It is, indeed, not a little curious that men who willingly enough admit that their bodies are composed of the elements existing in the earth and air and the animals and vegetables they consume should claim for their minds an entirely different origin and character. Yet the entire dependence of the mind on the body cannot be questioned by any intelligent man, and the discoveries of science have shown that the operations of the mind are performed by the expenditure of nerve force which all authorities are agreed is nearly allied to electricity and magnetism, and which, there seems little reason to doubt, must eventually be identified as a transformation of the various forces liberated by chemical changes carried on within the body.

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