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Science and Religion.

DOES a description of the world afford any evidence of the existence of God? This is the subject of a symposium in the April issue of the *Hibbert Journal*, and the discussion has particular interest for biologists. A description of the world is not merely a statement of those conceptions that we call natural laws, but it is also an interpretation of what Prof. Whitehead calls the "passage of Nature"—the evolutionary career. In this passage the various points of view taken by the writers are these: there is an increasing enrichment of what we may call the content of Nature; there is progress; and there is an effort or striving against something.

The first interpretation is made by Dr. J. S. Haldane in an argument of sustained power. The world of our experience may be known to us through the mathematical sciences, through physics, and through biology. The conception attained through pure mathematics is *bare*; it need not include objects, and it deals typically with the space and time relationships between objects. These relations, or differential equations, need not have physical meanings. The world, from this point of view, has form but no content. To construct it out of pure extension, that is, to give all natural laws geometrical meanings, is the tendency of the later relativists; thus the world is deprived of substance, or at least, the nature of this substance is ignored. Next come the physical sciences, enriching this conception by inserting objects into the world but ignoring the plain fact that its natural laws are only working hypotheses which have limited practical meanings. They are statements of the ways in which we can *act* on our physical environment. They are descriptions of our increased power over Nature.

Then come organisms—which add something new to the world. This conclusion depends on Dr. Haldane's difference from the majority of the biologists of the last generation. "Weighed in the balance of accurate quantitative investigation the mechanistic theory of life has been found wanting." What the Victorian materialism has envisaged in the organism has been "a vista of mechanisms," one inside the other, so to speak; postulated rather than really observed; incapable of explaining organic functioning, to say nothing of reproduction and behaviour. The conception is even inadequate as a means of investigation, and it is being replaced by other methods—for example, Dr. E. S. Russell's psycho-biology. Thus mechanism fails and in this failure we recognise a further enrichment of Nature. Biology becomes a science with its own fundamental conception of life.

Lastly, there is the self-conscious human personality.

This we may consider, first, as having immediate self-interest. On the strictly mechanistic outlook, it must regard all other organisms and conscious persons merely as moving objects similar to those other objects called inorganic. But even a purely physical description of the organism is not to be obtained, and by no process called scientific can the self-conscious person explain his *own* consciousness in terms of mathematics and physics. Further, he sees other organisms that are not self-conscious, and so the mere biological life-conception fails to explain consciousness in other organisms than himself. So he is bound to make yet another fundamental conception, that of the conscious, self-interested organism; but even that is not all. Almost every action that he performs—as a member of a human community—means that he recognises *other* conscious, self-interested persons like himself: otherwise he would not seek to convince them, nor would he praise, or blame, or pity, or like, or hate them. On the purely mechanistic outlook, the things that he does, every conscious minute of his life, are meaningless.

Then, even the purely physical thing is not a unit. Anything that is known to us is known only when it changes. When it changes it does so only because other things in the physical system to which it belongs also change. In the long run, the only isolated physical system that we know is the whole universe, and it is only by convention that we arbitrarily isolate a thing from all the rest of Nature. So also the functioning and behaviour of an organism means that it is acting on, or reacting with, or adapting itself to the environment—which is the whole universe. The self-conscious person (which is also a physical thing and an organism) is only such because it reacts with other self-conscious persons. Add to this the literally true conception that all organisms, conscious or unconscious, are materially and strictly continuous in the time dimension, then the whole world is one, and personality is everywhere in it.

Thus, to the physical categories of substance, necessity, relation, modality, quantity, etc., we must add those of life, consciousness, and personality. The personality is universal in time and space and is God.

Next we have Mr. Julian Huxley's interpretation of the passage of Nature as a progress. But evolution, he sees quite well, is not necessarily a passage from the "simple to the complex." It is quite as easy to look upon the "lower" organism as more complex than the "higher" one—just because it is undifferentiated. It is plain that the morphological, evolutionary series of changes is *irreversible*, and that the goal towards which all organic races tend, as they specialise, is extinction. How, then, to define "progress"? There is a series of changes that have led up to the

human race; let us attach a series of "values" to these changes, thus making a one-to-one correspondence, value to morphological change. What are the values? Those conditions judged by the human mind to have value *are* values. Progress then is the series of evolutionary changes that have *human* value, and it is, somehow, a tendency towards good. It is an obscure feeling "clarified and put on a firm intellectual footing by biology." It is true that the problems of evil, of pain, of strife, of death, of insufficiency and of imperfection remain to perplex us, but nevertheless progress is an element "essential to an externally grounded conception of God," to be incorporated into the common theology of the future.

Finally, there is Sir Oliver Lodge's interpretation of evolution as an effort: a conception which is more fundamental than any other that is touched in this discussion. Why, in the physical sense, have changes, or reactions, or events occurred at all? The answer is clear. If, by any change, a system can lose free energy or dissipate its energy, or increase its entropy-value (roughly equivalent statements), then that change will occur *of itself*. When the free energy has become minimal, or the entropy maximal, changes in the system will cease altogether. Now the only system which, in strict logic, we can consider is the whole universe. When entropy has attained its maximum value, or when all energy has become universally dissipated, all changes in the universe, all events, or phenomena (from our human point of view) will have ceased.

The world-paradox is that the universe is still the locus of change. Given an unbounded past, complete and final dissipation, with cessation of change, ought *already* to have been attained. The passage of Nature is thus towards materiality, or inertia, or passivity, but the passage is not accomplished—though it ought to have been accomplished. The world can only be the locus of activity and change because something resists, has arrested, or at least has retarded the passage towards materiality. There is an effort against inertia and this is life—the only physical conception of life that appears to be possible. There is a spiritual as well as a material passage.

Now why are there separate personalities at all? On Sir Oliver Lodge's general line of argument it may be reasoned (by analogy) that personality itself ought to exhibit a passage, or ought to be dissipated or absorbed into the universal personality, which is God. Why are they not so absorbed? Something, then, resists the ultimate dissipation of personality, just as life resists universal energy-dissipation. This something is the "invaluable but rather terrible and fearfully responsible grant" of Free Will, against which even Deity itself strives.

J. J.