

The Theory of Evolution.

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LAST session I had the honour of reading to the CARDIFF NATURALISTS' SOCIETY a paper on the "Darwinian Theory," and since that time I have given further attention to the subject. The little study I have been able to give it has strengthened my conviction of its truth, and widened my idea of its importance and of the extent of its application. When I read my paper I very innocently thought I was the first to suggest that Darwinism, if true, must of necessity extend into the region of psychology and ethics; but I subsequently found that Herbert Spencer had anticipated me, and that his "System of Philosophy" is, in fact, an exposition of such an application of Darwinism as I had suggested. I pointed out last year that Darwinism was an extension of the Malthusian Theory of Population to all organic nature. It is equally true that the Theory of Evolution is an extension of Darwinism to a still wider field: the development of inorganic nature on the one hand, and the phenomena of life, mind, society and morals on the other. It would be useless to attempt an analysis, or description, of Spencer's profound work within the limited time at our disposal this evening, because little idea of the system can be gathered without a long and close study of the subject. I hope, however, by a few remarks, to interest you in this important theory, and thus induce you to investigate it for yourselves.

Spencer commences his work by tracing the sources and marking the boundaries of knowledge. He distinguishes the "Knowable" from the "Unknowable," and points out that all scientific investigation leads up to an impassable barrier, beyond which it is impossible to see

or even to comprehend. He shows (what indeed is the ordinary teaching of metaphysicians) that all we can possibly know of things are their appearances or phenomena, and that without denying, or indeed while we cannot help inferring, there must be a cause behind, of which these appearances are the effects, it is impossible to form an idea, by unassisted reason, of the nature and attributes of that cause. Spencer, therefore, rigidly confining himself to the limits of the "Knowable," without attempting to solve the problem of the origin of things, investigates the phenomena they present. He traces all phenomena to what he calls "Persistence of Force." I despair of giving you an adequate notion of this recondite conception, but the comparison of creation to a watch may facilitate its comprehension. The *materials* of which the watch is composed may be compared to the matter or material of the universe; the *motion* given to it by the unbending of the watch-spring to this persistent force which unceasingly acts upon matter. The universe was, as it were, wound up by the Creator (or, as Spencer would say, by the "Unknowable"), and set going, and there is, in consequence, a constant pressure or power forcing matter into motion. This force exhibits itself in various forms. Gravitation, motion, heat, light, sound, electricity, magnetism and chemical affinity are all forms of force. None of these are matter, but conditions of matter. Many of our members will remember that Dr. Vachell gave us a lecture two or three years ago on these "Physical Forces" (as they are termed) or the various forms in which force exhibits itself, proving that one can be transmuted into another. He showed, by experiment, that motion can be changed into heat, heat into light, light into electricity and chemical affinity, and so on. When we look into nature and watch the working of these forces, we find they cause a continuous development and constant change from a homogenous condition to a heterogenous one, or in other words, a continuous *Evolution*. In one respect the comparison of the action of force to the motion imparted to the watch fails. The action of the watch-spring becomes weaker as it unwinds, and the power it exerts upon the machinery becomes exhausted, whereas the forces of nature are inexhaustible and exert the same power undiminished for ever. For instance, when motion is stopped it is not destroyed, but transmuted into some other form of force, such as heat or chemical action, without the slightest diminution of quantity. In one respect, however, the action of the physical forces bears an analogy to the

weakening of the watch-spring, in that they tend to an equilibrium. When that equilibrium is attained, force (though still existing) will cease to manifest itself.

Darwin's law of organic evolution is thus found to be the law of all nature. From the earliest traceable cosmical changes down to the latest results of civilization we find that there is a constant transformation of the homogenous into the heterogenous. Whether it be in the development of the earth, in the development of life on its surface, in the development of society, of government, of manufactures, of commerce, of language, literature, science, or art, this same advance from the simple to the complex, through differentiation, holds uniformly. Spencer traces the law of evolution in all these departments of knowledge. His work is still incomplete having yet to trace its operation in the provinces of sociology and morality. I look forward with interest to his forthcoming volumes on these departments of his great subject, upon which they will shed a new light.

Let us take, for illustration, its bearing on the principle of utilitarianism. The Theories of Malthus and Darwin, as well as Spencer's wider Theory of Evolution, are proximately based upon the fact that a redundancy of men, or a redundancy of organisms, or a redundancy of inorganic elements are brought into competition. If the theory is true, the social and mental conditions of men must be as much under the control of the principle, the "*Survival of the fittest*," as their physical conditions. That the "weak go to the wall" must be true, not only of those physically weak but also of those who are morally weak, or who are morally the least fitted to survive in the competition of the social system, and the result of the competition must be that all those members of the community whose moral conduct is inconsistent with its welfare will eventually be eliminated. The qualities of the human mind, which are best calculated to contribute to human happiness, are thus found, in the long run, to be identical with the qualities best fitted to perpetuate human existence, and the moral part of mankind are the more useful, *because* they are the more enduring. It would thus appear that utilitarianism is the necessary outcome of Evolution.

Metaphysicians have in all ages been divided into two great schools of ethical teaching. One of these maintains that moral principles are not inherent in the human mind; that the infant mind is a "*tabula*

rasa," a blank sheet of paper, upon which education and experience develop the human character and moral principle. The other school maintains that the principles of morality *are* inherent in the mind, implanted there when the infant comes into existence. These two theories have divided the philosophical world from the days of Aristotle and Plato to those of Hamilton and Mill, and the remarkable fact that both should have so long survived naturally leads to the conclusion that both have a foundation in truth. The theory of Evolution reconciles these two views. That some persons are by nature more honest (for instance) than others, seems impossible to deny. Men born among thieves show, unexpectedly, a vein of high principle, and it is triumphantly asked what but an intuitive and inborn principle could have made them honest? Utilitarians have naturally found it difficult to account for this phenomenon, but the solution of the difficulty is to be found in the theory of development. The mind of man was originally a "*tabula rasa*," but the experience and teaching of successive ages have developed the principles of morals, so that now there is a natural, instinctive, and inherent tendency in the mind towards that course of conduct which conduces to human welfare. But these principles, though not specially implanted in the mind by the Divine Artificer on each occasion that a human being comes into existence are indirectly, though not less surely, His work as the necessary outcome of the development of human character contemplated by the Divine Wisdom when the first germ, or cell, from which all beings have sprung was placed upon the earth. This view reconciles the two schools of metaphysical teaching to which I have referred, and confirms and elucidates the opinion that all the principles of sociology have their origin and foundation in the principle of utility, though not exactly in the mode contemplated by either of the schools of thought to which I have referred.

This illustration may be taken as an instance of the light the evolution theory may be expected to cast into the misty region of metaphysics. The interminable disputes of metaphysicians are due to the fact that they contend about what Spencer calls the "*Unknowable*," and because they do not confine themselves in that higher range of investigation to the same principles of close and accurate reasoning founded upon exact observation and experiment, which are now the universally accepted mode in physical science. Spencer investigates mental phenomena from its physiological side by the slow

but sure road of induction and verification, and avoids assuming even the existence of the Creator as the great *First Cause*, but he earnestly repudiates the idea that he is thereby supposed to imply the non-existence of the Deity. The "Unknowable" is, indeed, but another name for the Deity; and what can Persistent Force be but the constant manifestation of the Divine Will and Power? The assertion that the Deity is "unknowable" is anticipated by Job—"Canst thou by searching find out the Almighty to perfection?" The assertion that "Persistent Force" maintains all things seems but a paraphrase of St. Paul's statement, that "*in Him we live, and move, and have our being.*"

I was gratified to gather from some expressions which fell from Dr. Dallinger in his admirable lecture last week that he is more or less a believer in Darwinism. Those expressions coming from a Christian minister will, I trust, reassure timid minds and serve to show that a belief in Evolution is not inconsistent with a belief in orthodox Christianity.*

It will be readily admitted that, by the light of reason, we can have no conception of the Deity, and all the attributes we ascribe to Him signify but our inability to conceive anything concerning His nature. We can only know that there is a God, eternal, omnipotent and incomprehensible, and can only think of Him by ascribing to Him human attributes and conditions. As the spirit said to Faust, "What thou seest is the spirit, thou comprehendest *not me!*" In this sense, the ascription of the origin of things to the "Unknowable" is both scriptural and harmless, and St. Paul might as appropriately criticise the modern philosopher's appellation, as he did that of the Athenians of old. You all remember his noble language, but it is worth repeating in this connection—"And Paul stood in the midst of Mars' Hill and said, Ye men of Athens, I perceive that in all things ye are too superstitious, for as I passed by and beheld your devotions, I found an altar with this inscription,—'To THE UNKNOWN GOD'—whom therefore ye ignorantly worship, Him declare I unto you."

The Theory of Evolution is still *sub judice*, and may possibly be modified by the rigid scrutiny it is receiving in the scientific world,

* I may refer the reader who is interested in this subject, to an admirable paper by Dr. Dallinger, in the *London Quarterly Review*, entitled "Atheism, Evolution, and Theology." I am glad to find that Dr. Dallinger is setting an enlightened example to his reverend brethren by this manful advocacy of the truth of this theory.

but whether or not it is destined to undergo modification, it stimulates the investigation of nature and will shed a great light upon every department of natural knowledge. Its truth in the department of biology appears to me to be as conclusively established as the theory of gravitation or that of the conservation of energy, of which indeed it is the necessary consequence. That it is equally true in the higher departments of psychology and sociology, though extremely probable *à priori* is yet to be proved. Psychology has not yet been looked at from this point of view, and it is yet too soon to say or determine what will be the final outcome of the searching investigation it is destined to receive during the next generation.