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CONTRIBUTED ARTICLES

SCIENCE IGNORANT OF ORIGINS

BY WILLIAM WALLACE EVERTS

ROXBURY, MASS.

WHAT DO ASTRONOMERS KNOW OF THE ORIGIN OF THE UNIVERSE?

H. Poincare, in his preface to his "Lessons from the Hypotheses of Cosmogony," says: "The hypotheses are very numerous and all uncertain." On page XXIV he adds: "The explanations lose in precision what they gain in extent. We can only terminate with an interrogation point."

In his "Foundations of Science" he adds:

"We know that from all time the minor planets have obeyed the laws of Kepler but we do not know what was their initial distribution. Matter seems more and more complex. At each instant our formulas require new terms. It matters little to us whether Ether really exists. No doubt some day the Ether will be thrown away as useless. We know nothing as to what the Ether is." 1

W. Wundt says:

"We must halt at conditions of the beginning and the end. There is no standpoint from which to conduct investigations further in either direction." ²

Kant maintained that there was equally good and complete demonstration for holding both that the world had and had not a beginning in time, both that it is produced by free agency and by an infinite series of necessary antecedents and both subject to and exempt from the condition of causality.³

Sedgwick and Tyler, in their "Short History of Science," agree with Kant when they say:

"Geology teaches that there can be found no trace of a beginning, no prospect of an end. The modern theory of evolution makes no pretense to solve the problem of the origin of the cosmos." 4

The Nebular hypothesis of the origin of the solar system announced by Laplace, so long in favor, has met with a fatal blow, which is thus described by Von Sittel in his "History of Geology."

"The uniformity of rotation of all bodies in the solar system is a fundamental conception of the nebular hypothesis of Laplace. All moons and satellites move from West to East, Laplace said. He did not know that the Satellites of Neptune and Uranus were moving from East to West." ⁵

James Hutton avers that "There is no vestige of a beginning, no prospect of an end." *

WHAT DO CHEMISTS KNOW OF THE ORIGIN OF MATTER AND FORCE?

Some of them frankly confess that they know nothing. Others are irritated by the question and try to avoid it by denying the existence of both matter and force and even cause itself.

"The dictum of the last and highest science is that motion seems to be matter and matter seems to be motion, yet "we are probably incapable of discovering" what either is. All that history needed to know was the admission of ignorance."

Henry Adams was shown the dynamos at the Paris exhibiton by Professor Langley, who explained how little he knew about electricity or force of any kind.

First came the molecular theory of matter. Matter was made of molecules. Then came Dalton's theory that molecules were made of atoms. Finally in atoms particles have been found that are called corpuscles or electrons.

Nernst, the physicist, admitted that as "The Greeks accounted for the changes in natural objects by the love and hatred of atoms so we have not gone much further today, only we have changed the name to affinity." 10

"Du Bois Reymond objects to the use of the expressions, living force, and chemical force, or affinity. The force that causes the effect remains strange and unknown to us." 12

Isaac Newton humbly says: "Hitherto I have not been able to discover the cause of those properties of gravity from Phenomena and I frame no hypothesis." 12

Asa Gray is equally modest and affirms: "A beginning is wholly beyond the ken and scope of science which is concerned with questions about how things go on and has nothing to say as to how they absolutely began." 18

J. M. Macfarlane, another unpretentious scholar, declares that, "No one can predict what the ultimate views as to the constitution and relation of matter and energy may be." ¹⁴

Lloyd Morgan gives up the quest. "Cohesion, chemical affinity and molecular force," he says, "are something outside the recognized order of nature. There can be no understanding in the sense of getting behind things. Even the action of brute matter cannot be understood." 13

Merz pours contempt upon sciolists, when he says, "There is a popular philosophy founded upon the unknown principle of matter and the equally unknown principle of force by second rate scientists in Germany." 16

H. Poincaré exposes the camouflage of terms that hide ignorance. "What we called motion and now call electric current he says are only images substituted for the real object which nature will eternally hide from us." 17

Herbert Spencer admits that force is inscrutable.18

Charles Minot announces his agnosticism: "As to what is or may be behind the physical explanation, complete agnosticism is, of course, the only possible attitude." 19

Karl Pearson despairs of an answer.

"First causes have no existence for science. Better than say first cause, say here for the present our ignorance begins. To ask what moves and why it moves is to ask an unanswerable question.²⁰

Chambers Encyclopedia takes the same position. "Till we know what matter is, if there be any matter in the ordinary sense of the word at all, we cannot hope to have any idea of the absolute nature of force. Any speculations on the subject are utterly beyond the present powers of experimental science."

John Petersen tells of some naturalists who go so far

in their monism as to deny the existence of substance. This is the best evidence of the fact that the essence of substance is inexplicable. The celebrated chemist Ostwald says that the idea of substance can be entirely neglected. The scientist cannot tell the origin of matter, of life, and spirit. His inability is such that it does not depend on the condition of knowledge. It is absolute." ²²

Bertrand Russell announces that "In advanced sciences the word cause never occurs. Physics never even seeks causes because there are no such things. It is a mistake to suppose that causes operate at all." ²³

Charles Sedgwick Minot thinks that it would be a great contribution to science to kill off the hypothesis of matter as distinct from force. We never have had any evidence whatever that matter exists." 24

In Huxley's opinion the very existence of matter and force is at best a highly probable hypothesis. The physicist in pursuit of the knowledge of matter comes speedily to where matter itself requires to be accounted for.²⁵

We have as yet no proof whatever that force proper has objective existence. In all probability there is no such thing as force. We do not know and are probably incapable of discovering what matter is.²⁶

WHAT DO BOTANISTS KNOW OF THE ORIGIN OF THE PLANT?

- R. Von Wettstein says: "The ultimate origin of all plant organisms is hidden in darkness."
- D. H. Scott agrees that "We have no idea as yet how the evolution in plants was effected nor how the infinite variety of flowering plants was developed." ²⁸

Bower, in his "Origin of a Land Flora," says that the "Summary is hypothetical and uncertain as in their very nature any conclusions must necessarily be. The evolutionary origin of the leaf must be still a matter of doubt. There is no certain knowledge how the root originated." ²⁰

Wiesner, founder of a school of Botanists, confesses that "Phylogenesis, which has proceeded in immeasurable ages, bears for that reason the character of a hypothesis." He concludes, "If I compare the organic with the inorganic system, I find that the progress of our Knowledge is continually widening the gulf that separates the one from the other." **

Sachs is quoted in the Century Dictionary as saying, "the first and simplest plants arose by spontaneous generation or special creation." ⁵¹ As the idea of spontaneous generation has been abandoned by scientific men there can be, according to Sachs, no scientific explanation of the appearance of plants.

WHAT DO BIOLOGISTS KNOW ABOUT THE ORIGIN OF ANIMAL LIFE?

C. E. Von Baer maintains that while "Science is eternal in its source, immeasurable in its content and endless in its task, it is unattainable in its goal. Chemistry cannot explain biology."

"The majority of investigators believe in something unknown between the inorganic and the organic. Every species of plant and animal and every chemical substance finds a problem in trying to trace its effects to its component parts.³²

Lord Kelvin affirms that "The influence of animal or vegetable life on matter is infinitely beyond the range of any scientific inquiry hitherto entered on." 33

"Darwin wrote to a friend, it is mere rubbish thinking at present of the origin of life. One might as well think of the origin of matter." 34

J. A. Thomson says clearly: "If it were the object of this book to give a statement of the established facts of biology, our discussion of the origin of life might be condensed into a single sentence. We do not know anything in regard to the origin of life." 35

Huxley is quoted by J. P. Lotsy as saying: "Those who accept Darwinism are not bound to any particular views as to the causes of heredity or of variation." 36

Huxley confesses his ignorance in these words: "To say therefore in the admitted absence of evidence that I have any belief as to the mode in which the existing forms of life have originated would be using words in a wrong sense." "To say therefore the admitted absence of evidence that I have any belief as to the mode in which the existing forms of life have originated would be using words in

Notwithstanding this confession of ignorance he still maintains that "Science commits suicide when it throws itself into the arms of faith." 36

J. G. Schurman charges that Huxley has nothing to say of the first beginning of the primordial species. To the man of science its emergence must be a miracle, for it is a violation of natural causation.

The survival of the fittest does not account for the arrival of the fittest. A self-evolved organism is a miracle which no naturalist has as yet transmuted into science. As Darwin wrote to Huxley in 1859, "What the devil makes a tuft of feathers come on a cock's head or moss on a moss rose." 39

Newman concedes that "The problem of the vertebrate ancestry of man is an old one and one that evades a direct solution." 40

At a meeting of naturalists at Munich in 1877, Virchow declared that anthropologists are farther removed than ever from the notion that man is descended from the vertebrates. At a congress held in 1872, DuBois Reymond declared what force and matter are and how we are to think of them, ignoramus, ignorabimus. In 1880, he said "There is evidently a plan in nature. We must face it with earnest and conscientious reflection."

In 1877 Virchow vigorously opposed the introduction into the schools of Germany of the theory of Darwin about the descent of man.⁴¹

Up to the present time the theory of natural selection has held the fort. Many concessions have been made, so many that but little is left of the original theory and on this ground alone it would probably be wise to abandon it.⁴²

John Stuart Mill allows that in the present state of our knowledge the adaptations in nature afford a large balance of probability in favor of creation by intelligence.⁴²

Wallace claims that natural selection does not pretend to explain the cause of variations."

Dr. Laloy admits that we know nothing positive of the origin of life.48

Hans Driesch fully concedes the ignorance of science, "No kind of causality based upon physical and chemical acts can account for organic development. Selection has proved to be a negative factor only, has failed in the most marked manner. As to the origin of life I confess that I know nothing at all. We never come to any kind of beginning. The series of questions and problems might be continued but there are no answers." 46

Bishop Temple remarks that "Repeatedly have scientific observers believed that they have come on instances of spontaneous generation, but further examination has invariably shown that they have been mistaken." 47

"The experiments of John Tyndall fully corroborating the results of Pasteur gave a final quietus to the claim of spontaneous generation." 48

Augustus Weisman is forced to say "I admit that spontaneous generation, in spite of all vain efforts to demonstrate it, remains for me a logical necessity. We cannot regard organic and inorganic matter as both eternal." 49

St. George Mivart quotes Wallace as insisting upon the necessity of a new cause or power having come into action at the origin of life as well as at the origin of man himself.⁵⁰

Virchow describes, but does not explain the origin of life. "The essential feature of life he says is a communicated force additional to molecular forces. Whence it comes we are not told." 51

Pfeffer, the physiologist, does not hesitate to say that "The human mind is no more capable of forming a conception of the ultimate cause of things than of eternity." ⁸²

E. Crato, the biologist, sets forth, "How incomparable the living organism is with a machine, how it builds itself up, steers and stokes itself, how it produces with playful ease the most marvelous and graceful forms." ⁵⁸

Josiah Royce is quoted by H. Poincaré as saying that, "The origin of man, of life, of species, of the plant are matters which the men of the laboratory often regard as belonging not at all to the domain of true science." ⁵⁴

The question inevitably arises if science utterly fails

to answer these questions, where are inquirers to find satisfaction?

Borodin, the physiologist, gives warning that "To penetrate further into the processes of life is simply to become aware of an ever deepening series of riddles." 55

H. F. Osborn consigns this question to metaphysics. "The mode of the origin of life," he says, "is a matter of pure speculation. Bio-chemical cooperation was an application of energy new to the cosmos." ⁵⁶

Huxley quibbles, when he says that "Vitality is nothing but the name of a series of operations." 57

Virchow insists that molecules alone cannot cause life. "I consider it necessary to distinguish as an essential factor of life an impressed derived force in addition to the molecular forces." ⁵⁸

De Bois Reymond says frankly, "Physiology is the only science in which one is obliged to speak about things which one does not know." 59

WHAT DO ZOOLOGISTS KNOW OF THE ORIGIN OF INSTINCT?

Romanes sets aside the views of other psychologists. Mill, from ignoring the broad facts of heredity in the region of psychology, may be said to deserve no hearing on the subject of instinct; and the same, though in a lesser degree, is to be remarked of Bain. Spencer regards instinct as the precursor of intelligence, while Lewes regards it as "lapsed intelligence." 60

He remarks concerning the instinct of animals that "No one can deplore more than I do that the most interesting of the regions where scientific research can exercise, is found to be that in which experimentation or verification of induction is least applicable."

"There are no material vestiges of the genesis of instincts. The observation of instinct can produce nothing which concerns its genesis." 61

Gustave Geley maintains that "The origin of instinct is not explicable by natural selection or by the influence of environment. The origin of primary instinct is difficult to discover." 63

Henry Joly gives up the question with the remark that

"If we would have a direct demonstration of the origin of instinct, the question would be insoluble." **

WHAT DO PSYCHOLOGISTS KNOW OF THE ORIGIN OF CONSCIOUSNESS?

W. P. Montague points out their dilemma. "Both science and philosophy have resigned themselves to the acceptance of an inexplicable concomitance or parallelism between the physical and psychical series of events." 64

John Petersen asserts that "No mathematical formula, no measure, no standard, no instrument of observation can explain consciousness, how tone arises from air waves from a violin, or sensation of color from molecules of ether."

Physiological psychology deals with means, not with agent. Body and soul may be parallel but they are not identical. The body is like an organ but the organ does not play. It is the organist.⁶⁵

St. George Mivart acknowledges that "The origin of consciousness is entirely removed from that field of observation which is furnished to us by a study of the physical and psychical powers of merely animal life. The origin of consciousness remains shrouded in inscrutable mystery." 66

Charles Sedgwick Minot declares that "The study of what consciousness is carries us far beyond the limits of verified human knowledge." 47

"The brute mechanism of the mind's connection with its bodily place seems still utterly an enigma." 68

St. George Mivart quotes Mr. Romanes when speaking of the origin of speech as saying, "Any remarks which I have to offer upon this subject must needs be of a wholly speculative or unverifiable character. I attach no argumentative importance to any of these hypotheses." 69

Bischoff, the biologist, asks, "Who acts as guide to the cells? By whom are mechanical conditions brought together? We need a name for effects of which we do not know the causes, for a force regarding the essence of which we know no more than we do of any cause that cannot be further analyzed." ⁷⁰

Driesch, the biologist, finds that "There is a natural law the workings of which are entirely enigmatical. The vital processes compel us to admit that it seems as if intellect determines the quality and the order." ⁷¹

The Marquis of Salisbury suggests that "If we are not able to see far into the causes and origin of life in our own day, it is not probable that we shall deal more successfully with the problem as to how it arose many million years ago." ⁷²

Henry Adams, the American Historian, thus analyzes the situation. "A discreet historian would not dare to hazard an opinion about the value of natural selection by minute changes under uniform conditions, for he could know no more about it than most of his neighbors who knew nothing; but natural selection that did not select,—evolution finished before it began—minute changes that refused to change anything during the whole geological record, survival of the highest order in a fauna which had no origin, uniformity under conditions which had disturbed everything else in creation—to an honest student such sequence brought no peace." 73

Whewell, Historian of Science, claims that "We must either contemplate supernatural influence as part of the past series of events or declare ourselves altogether unable to form this series into a connected chain." ⁷⁴

John Morely said: "Whether theories of evolution be right or wrong, certain it is that those who accept them do not touch one vital point of Christian faith. They can only add strength to our sense of the infinite wisdom of the Creator. We know that there can be no law without a law giver." ⁷⁶

Lord Kelvin, acknowledged leader of scientific men, professes, "I have always felt that the hypothesis of natural selection does not contain the true theory of evolution, if evolution there has been in biology. I feel profoundly convinced that the argument from design has been greatly too much lost sight of in recent zoological speculation. Overpowering strong proofs of intelligent and benevolent design lie around us, and if ever perplexities whether metaphysical or scientific, turn us away

from them for a time, they come back upon us with irresistible force, showing us through nature the influence of a free will and teaching us that all living things depend on one everlasting Creator and Ruler." ⁷⁶

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 <sup>8</sup> Robert Flint, Agnosticism, p. 211.
 4 P. 384.
 <sup>5</sup> P. 153.
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<sup>11</sup> O. Hertwig, ut supra, p. 49.
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16 European Thought in the 19th Century, p. 399.
<sup>17</sup> Foundations of Science, p. 140.
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<sup>20</sup> Grammar of Science, pp. 127, 243, 247.
<sup>21</sup> Article on Force.
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<sup>81</sup> Botany, p. 846.
<sup>32</sup> O. Hertwig, ut supra, pp. 50, 46, 47.
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- 40 Stewart and Tait, ut supra, p. 330.
- 50 Origin of Human Reason, p. 27.
- ⁵¹ Otto, ut supra, p. 237.
- 52 Otto, ut supra, p. 249.
- 53 Otto, ut supra, p. 251.
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- 56 Origin of Life, pp. 67, 69.
- ⁸⁷ Merz, ut supra, p. 396.
- 58 Merz, ut supra, p. 377.
- 59 Merz, ut supra, p. 381.
- 40 Mental Evolution in Animals, p. 256.
- ⁶¹ P. Hachet Souplet, La Genese des instincts, pp. 1, 2, 8.
- 62 From the Unconscious to the Conscious, p. 18.
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