

**MODERN PHILOSOPHICAL
CONCEPTIONS OF LIFE: AN
ADDRESS DELIVERED BEFORE THE
PHILOSOPHICAL SOCIETY OF
WASHINGTON, DECEMBER 3D, 1881**

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Modern Philosophical Conceptions of Life: An Address Delivered Before the Philosophical Society of Washington, december 3d, 1881 by Joseph Janvier Woodward

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JOSEPH JANVIER WOODWARD

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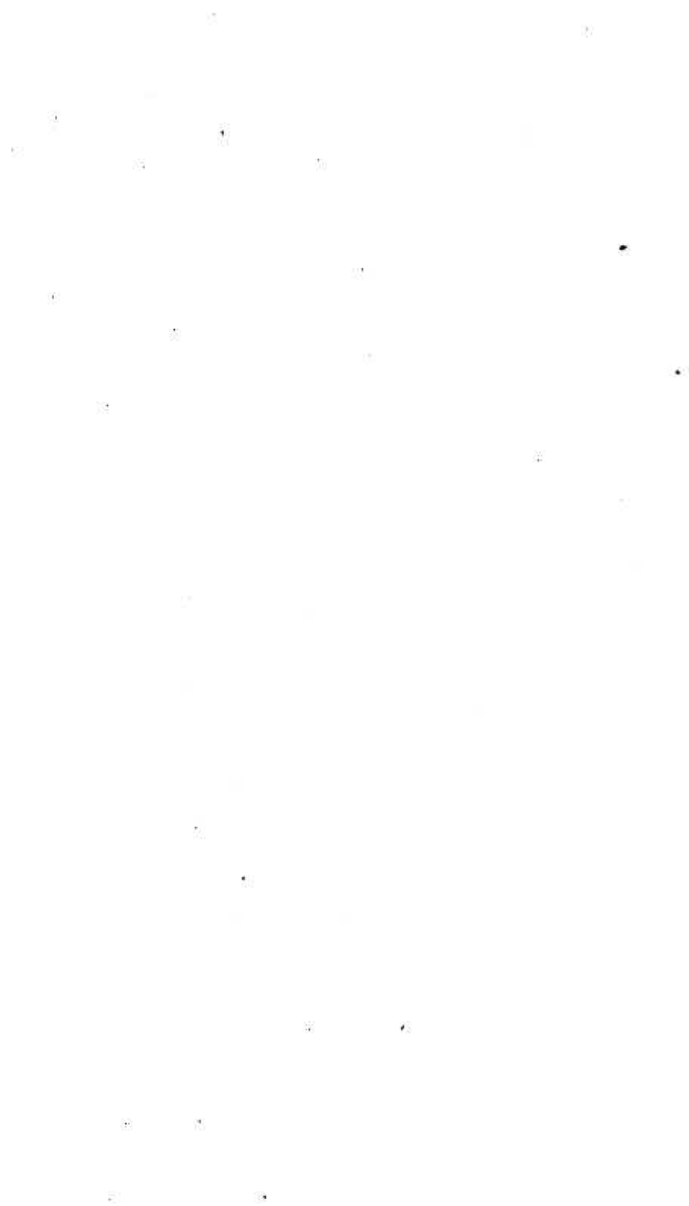
BY

JOSEPH JANVIER WOODWARD,

RETIRING PRESIDENT OF THE SOCIETY.

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MODERN PHILOSOPHICAL CONCEPTIONS OF LIFE.

GENTLEMEN :

I address you this evening in accordance with the fifth of the new Standing Rules for the government of the Philosophical Society of Washington, adopted in January last, which directs that the stated meeting next preceding the annual meeting for the election of officers shall be set apart for the delivery of the President's Annual Address. By the rules adopted at the first organization of the society the President's address was directed to be delivered on the evening of the annual meeting after the election of officers had taken place. It was found, however, that the elections always occupied the whole meeting, so that the address was necessarily postponed until after the term of office for which the President was elected had expired. During the presidency of the illustrious Professor Henry, who by common consent was re-elected annually, the inconvenience of this arrangement was not felt. But I understood the general sense of the Society last year to be that an annual change of President is desirable, and that this standing rule was adopted in view of that feeling, in order to give the retiring President a convenient opportunity for the delivery of his address before his term of office expires.

For my own part I was last year, and am now, thoroughly convinced of the desirability of electing a new President annually in a society like ours. I think on the one hand that it is a measure well calculated to increase the interest taken in the society by its members, and on the other hand that the preparation of a formal annual address would be too great a tax upon the time of a President re-elected from year to year. I think, too, that there is much propriety in a suggestion which I heard expressed in many quarters last year, that our President should be selected alternately, from what may be called for convenience, the Physical and Biological sides of the society, so that having been myself elected as in some sort a representative of the Biological side, it is my hope that you will at the next meeting elect as my successor a representative of the Physical side. With this brief explanation I will proceed at

once to the consideration of the subject I have selected for the present occasion.

I propose to invite your attention this evening to some thoughts on the *Modern Philosophical Conceptions of Life*. The theme is so large that it would be idle to attempt its systematic treatment in the course of a single evening; nor do I pretend to be in possession of any satisfactory solution of this ancient question, of which I might offer you an abstract or outline, pending the fuller presentation of my results elsewhere. Yet I have ventured to hope that a discussion of some of the considerations involved, and a brief statement of certain views that I have been led to entertain, would not be without interest, and perhaps might prove of actual service, especially to those of you who are engaged in biological pursuits.

Undoubtedly the conception of life most popular at the present time is that which assumes all the phenomena of living beings to be the necessary results of the chemical and physical forces of the universe, and claims, or intimates, that wherever this has not yet been proven to be the case the evidence will hereafter be forthcoming. This doctrine, which may conveniently be designated the chemico-physical hypothesis of life, has readily found its way from the speculative writings of philosophers to the rostrums of some of our teachers of chemistry and physics who boldly declare, in their class-lectures and public addresses, that the forces at work in the inorganic world are fully adequate to explain all the phenomena of living beings, and prophesy that the time is soon coming "when the last vestige of the vital principle as an independent entity shall disappear from the terminology of science."¹

Now, most of these gentlemen are not embarrassed by any very definite or detailed knowledge of the physiological and pathological phenomena which a tenable theory of life must be competent to explain, while they do know, or at least ought to know, a great deal of chemistry and physics; the confidence with which they maintain their creed is therefore readily understood. Much more surprising is it to find the same doctrine embraced by numerous zoologists, physiologists, nay, even pathologists, among them men who cannot for a moment be supposed to be unacquainted with the phenomena to be explained, and of whose abilities and reasoning powers it is impossible for me to think or speak otherwise than respectfully. Yet I cannot but believe that they have adopted the chemico-physical hypothesis, not so much because they are really

satisfied with it as a scientific explanation of all the phenomena, as because they are unduly biased in its favor by the utterances of the great philosopher who has done, as I think we will all agree, such good service to biological science by elaborating and popularizing the doctrine of evolution.

It is only natural that such a bias should exist. The discussion of the nature of life—in the case of man at least—has always, and not unreasonably, been conjoined with the discussion of the nature of the soul, and the philosophers who have won highest repute in the latter discussion, have always been willing enough to offer solutions of the life-problem, and have never had any difficulty in finding followers even among those whose special lines of investigation might be supposed to impose upon them the duty of independent inquiry into the meaning of life.

Just as it was in the old time, with regard to this matter, so it is now. When Galen undertakes to discuss the complex phenomena of the Psyche, as manifested by the human species, he openly and continually confesses the extent to which he relies upon the authority of Plato; and when the dicta of the master are such as to require a special effort of faith on the part of the disciple, he honestly exclaims "Plato indeed appears to be persuaded of this, as for me, whether it be so or not, I am unable to dispute the question with him."²

In like manner, did they venture to be as frank as Galen was, most of the modern biologists who have adopted the chemico-physical theory of life would, I presume, confess "as to this matter our opinions are derived from Mr. Herbert Spencer's Principles of Biology—what are we that we should venture to dispute as to questions like these with him."

Nevertheless in striking contrast to this chemico-physical hypothesis of life, which is to be regarded as the fashionable faith of the hour, there still survives in many quarters, and especially among physicians, a disposition to regard indiscriminately almost all the phenomena of living beings as peculiar manifestations of a vital principle. So strong, indeed, is the faith of some of these modern vitalists, that they seem to shut their eyes to the evidence already in our possession as to the actual participation of known chemical and physical forces in the operations going on within living bodies, and appear almost to resent the willing aid that chemistry and physics afford to the physiological investigator of the present day.

Nay, further than this, in the inevitable reaction that is beginning to make itself felt against the avowed revival of the materialism of Epicurus and Lucretius—for we all know now that the chemico-physical hypothesis of life is not a new induction of modern science, but an ancient Greek speculation reappearing in modern petticoats—that other Greek speculation of the threefold Psyche, the doctrine taught by Plato and Aristotle, and which Galen accepted on their authority, the doctrine of a vegetable, an animal, and a rational soul, a human trinity coexisting in every human being, is once more rehabilitated and finding followers—likely, indeed, as I think, to obtain more followers than perhaps any of you yet suppose. And these followers are by no means confined to metaphysicians or churchmen, they can be found also already among the biologists. It is an English biologist of good repute, and of no mean abilities, who takes occasion, in a technical biological work published this very year, to express his belief that the Greek conception of the threefold Psyche “appears to be justified by the light of the science of our own day.”

For myself I must confess at once that I am quite unable to join either of these opposing camps as a partizan. I cannot accept the more strictly vitalistic views, because I am compelled continually to recognize the operation of purely chemical and physical forces in living beings. On the other hand, there are whole groups of phenomena characteristic of living beings, and peculiar to them, for which the chemico-physical hypothesis offers no intelligible explanation.

From this point of view the various processes and functions of living beings may indeed be divided into two classes, of which the first may be regarded with more or less certainty as the special results, under special conditions, of the very same forces that operate in the inorganic world; while the second, to which alone I would apply the term vital, are not merely in every respect peculiar to living beings, and hitherto utterly inexplicable by the laws of chemistry and physics, but are so different in character from the phenomena of the inorganic world that it does not seem rational to attempt to explain them by these laws.

Let me refer briefly to the processes and functions belonging to the first class. Here I place all those more strictly chemical processes by which, within the very substance of vegetable protoplasm, inorganic elements are combined into organic matter,

as well as those which produce all the various subsequent transformations, whether in plants or animals, of the organic matter thus prepared. This general conception includes of course, in the case of the higher animals, all the chemical phases of the processes of digestion, assimilation and tissue-metamorphosis or metabolism, including secretion and excretion; in the case of the lower animals and plants, so much of these several functions as belongs to each species.

Now please to understand that when I say I recognize all the chemical phases of these processes to be the results of the ordinary chemical laws, I do not entertain any mental reservation with regard to the unrestricted application of these laws. I cannot for a moment agree with those physiologists who have imagined the vital principle to thwart, or interfere with, or counteract these laws in any way. I know, indeed, that we are far from being as thoroughly acquainted, as we may by and by hope to be, with the chemical phenomena of living beings; that many of the questions are very difficult, so that as yet, with all our labor, we have obtained but partial or even contradictory results; but I find in this only a reason for further investigation—no logical difficulty of a radical kind. In a general way I recognize that the matter of which living beings are composed is built up of elementary substances belonging to the inorganic world, and that it consists of atoms possessed of the very same properties, and obedient to the very same laws as like atoms in inorganic bodies. Yet I confess I find in all this no reason for denying the existence of a vital principle; only I do not figure this principle in my mind as a hostile power interfering in any way with the chemical tendencies of the atoms present; I liken its operations rather to those of the chemist in his laboratory who obtains the results he needs only on the condition of most rigid obedience to chemical laws.

Intimately associated with some of the chemical processes just enumerated are those chemical processes of respiration, in which the chemical affinities of the oxygen of the atmosphere are directly or indirectly the means of promoting tissue metamorphosis, as well as of reducing at once to simpler forms some portion of the various complex substances derived from the food. These chemical processes are undoubtedly the chief original sources of the heat and mechanical power manifested by animals. Of course they receive heat also from without by conduction and radiation; but this is a