The science and philosophy of the organism

Driesch Hans
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Author: Driesch Hans

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the diversities of the organism remain as unintelligible as they always were, even if we know that inheritance is responsible for what is similar or equal. Now, there can be no doubt that the diversities are the more important point in systematics; if there were only similarities there would be no problem of systematics, for there would be no system. Let us be glad that there are similarities in the diversities, and that these similarities have been explained in some way; but let us never forget what is still awaiting its explanation. Unfortunately, it has been forgotten far too often. (xxx, 255.)

Wise words which might well be pondered over by the makers of manuals, if a book of this depth and comprehensiveness were ever likely to be the object of their study. From the study of morphogenesis, through which the author believes it is possible to arrive at a conclusive decision as to the autonomy of life, he proceeds to discuss the physiology of metabolism, which, though pointing in a similar direction, does not appear to him to present equally irrefutable arguments, and thence leads us to the consideration of the “large fields of systematics and history [where] we found that there was very little to be learnt at all.” (ii, 3.)

In the first part of the second volume the subject of tactisms, to which some modern materialistic writers would refer all motion and action, is most fully dealt with and, after considering the illuminating work of Jennings and other writers, the author concludes that “though we cannot at present say that no case whatever of ‘taxis’ exists (except galvanotaxis), we shall not, I believe, be very far wrong in saying that probably the range of ‘taxis’ will prove finally to be at least very restricted.” (ii, 19.) The remaining portion of this section of the book is devoted to a consideration of the subject of “action,” as an argument in favour of a vitalistic explanation of Nature.

The result of all this is to prove to the reader that something more exists in the living thing than mere chemico-physical occurrences, and this “something over” long known—a name which is certainly open to grave objections—as “vital force,” the author christens “entelechy”: “for indeed we have shown that
bears the end in itself,” *ο ἐξεὶ εἰς εὐαντῷ τὸ τέλος*.” (i, 144.)

To build up the organism as a combined body of a typical style is the task of entelechy; entelechy means the faculty of achieving a “forma essentialis”; being and becoming are united here in a most remarkable manner: time enters into the Timeless, i.e., into the “idea” in the sense of Plato. (ii, 149.)

Different kinds of entelechies may be said to be at work in the organism. There is first the entelechy morphogenetica, and after that the entelechies psychochoida. But all entelechies have originated from the primordial one, and in this respect may be said to be one altogether. (ii, 150.)

The oft-debated question of the relation of the entelechies, for we will not quarrel with our author’s term, so long as he has the root of the matter in him, with the Law of the Conservation of Energy, is once more debated and the author commences his discussion by asserting that entelechies is not an energy. All energies known to exist or invented to complete the general energetical scheme are quantities

*entelechies lacks all the characteristics of quantity:* entelechies is

(order of relation and absolutely nothing else; all the quantities concerned in its manifestation in every case being due to means which are used by entelechies, or to conditions which cannot be avoided. (ii, 169.)

What then is the action—if we may use such a word—of entelechies?

It is only an action of suspending that which, but for this, would happen—an action of regulating by suspending.” (ii, 182.)

Entelechies, though not capable of enlarging the amount of the diversity of composition of a given system, is capable of augmenting its diversity of distribution in a regulatory manner, and it does so by transforming a system of equally distributed potentialities into a system of actualities which are unequally distributed. (ii, 192.)

Finally (ii, 205)

Entelechies are not energies, not forces, not intensities, and not constants, but—entelechies. Entelechies, as we know, is a factor in nature which acts teleologically. It is an intensive manifoldness, and on account of its inherent diversities it is able to augment the amount of diversity in the inorganic world as far as distribution is concerned. It acts by suspending and setting free reactions based upon potential differences regulatively. There is nothing like it in inorganic nature.

Entelechies, he thinks, may not only have this suspending power but also may have “the faculty of reversing any mass-element it likes, and of thereby changing the direction of forces and motions” (ii, 222), by acting
"upon it at right angles to its path—this kind of action requiring no energy." (ii, 223.)

It is not possible to follow the author's philosophical arguments further, limits of space, not of willingness or desire, forbidding the present reviewer, but what has been said will be enough to show the philosophical reader that the theories brought forward by the distinguished lecturer are not wholly unfamiliar under other names and another terminology. Such, in fact, is the case, for though the biological arguments are new, or newly-put, the main thesis is one which all scholastic philosophers have long discussed.

It is a noteworthy fact that no single writer of this school is quoted throughout the two volumes, nor are the "schoolmen" alluded to save once, and that almost casually. Hence the support which is lent to their views is the more remarkable, for, after all is said and done, new "entelechy" is nothing more than that old "simple principle completely immersed in matter"; with which we have all long been familiar. But in saying this we should not like to be taken as in any way undervaluing the two volumes before us. On the contrary, it is our deliberate opinion that scarce any work of greater importance and significance to the biologist and to the philosophical student has issued from the press for quite a number of years. No philosophical student can be pardoned who does not read and re-read it, nor any library be considered complete in which these two volumes do not find a place.

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SCIENCE AND PHILOSOPHY
OF THE ORGANISM

THE GIFFORD LECTURES DELIVERED BEFORE
THE UNIVERSITY OF ABERDEEN
IN THE YEAR 1907

BY

HANS DRIESCH, Ph.D.
HEIDELBERG

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PREFACE

This work is not a text-book of theoretical biology; it is a systematic presentation of those biological topics which bear upon the true philosophy of nature. The book is written in a decidedly subjective manner, and it seems to me that this is just what "Gifford Lectures" ought to be. They ought never to lose, or even try to lose, their decidedly personal character.

My appointment as Gifford Lecturer, the news of which reached me in February 1906, came just at the right moment in the progress of my theoretical studies. I had always tried to improve my previous books by adding notes or altering the arrangement; I also had left a good deal of things unpublished, and thus I often hoped that I might have occasion to arrange for a new, improved, and enlarged edition of those books. This work then is the realisation of my hopes; it is, in its way, a definitive statement of all that I have to say about the Organic.

The first volume of this work, containing the lectures for 1907—though the division into "lectures" has not been preserved—consists of Parts I. and II. of Section A, "The Chief Results of Analytical Biology." It gives in Part I. a
shortened, revised, and, as I hope, improved account of what was published in my Analytische Theorie der organischen Entwicklung (1894), Die Localisation morphogenetischer Vorgänge; ein Beweis Vitalistischen Geschehens (1899), and Die organischen Regulationen (1901), though for the professed biologist the two last-named books are by no means superseded by the new work. Part II. has never been published in any systematic form before, though there are many remarks on Systematics, Darwinism, etc., in my previous papers.

The second volume—to be published in the autumn, after the delivery of the 1908 lectures—will begin with the third and concluding part of the scientific section, which is a very carefully revised and rearranged second edition of my book, Die "Seele" als elementarer Naturfactor (1903). The greater part of this volume, however, will be devoted to the "Philosophy of the Organism," i.e. Section B, which, in my opinion, includes the most important parts of the work.

Some apology is needed for my presuming to write in English. I was led to do so by the conviction, mistaken perhaps, that the process of translation would rob the lectures of that individual and personal character which, as I said before, seems to me so much to be desired. I wished nothing to come between me and my audience. I accordingly wrote my manuscript in English, and then submitted it to linguistic revision by such skilled aid as I was able to procure at Heidelberg. My reviser tells me that if the result of his labours leaves much to be desired, it is not to be wondered at, but that, being neither a biologist nor a
philosopher, he has done his best to make me presentable to the English reader. If he has failed in his troublesome task, I know that it is not for want of care and attention, and I desire here to record my sense of indebtedness to him. He wishes to remain anonymous, but I am permitted to say that, though resident in a foreign university, he is of Scottish name and English birth.

My gratitude to my friends at Aberdeen, in particular to Professor and Mrs. J. A. Thomson, for their hospitality and great kindness towards me cannot be expressed here; they all know that they succeeded in making me feel quite at home with them.

I am very much obliged to my publishers, Messrs. A. and C. Black, for their readiness to fulfil all my wishes with respect to publication.

The lectures contained in this book were written in English by a German and delivered at a Scottish university. Almost all of the ideas discussed in it were first conceived during the author's long residence in Southern Italy. Thus this book may be witness to the truth which, I hope, will be universally recognised in the near future—that all culture, moral and intellectual and aesthetic, is not limited by the bounds of nationality.

HANS DRIESCH.

Heidelberg, 2nd January 1908.