

**DEFENSIVE FERMENTS OF THE ANIMAL
ORGANISM AGAINST SUBSTANCES OUT OF
HARMONY WITH THE BODY, THE BLOOD-
PLASMA AND THE CELLS; THEIR
DEMONSTRATION, AND THEIR DIAGNOSTIC
SIGNIFICANCE FOR TESTING THE FUNCTIONS
OF DIFFERENT ORGANS**

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Defensive ferments of the animal organism against substances out of harmony with the body, the blood-plasma and the cells; their demonstration, and their diagnostic significance for testing the functions of different organs by Emil Abderhalden

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EMIL ABDERHALDEN

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of different organs

BY

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With 11 Text Figures and one Plate

THIRD ENLARGED EDITION

ENGLISH TRANSLATION BY

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TO
MY FAITHFUL COLLABORATORS.

Preface to the English Edition.

It is more than three years since Abderhalden first published his results in regard to the sero-diagnosis of pregnancy. In the course of his general studies on the nature and properties of the ferments in the blood, and on their relations to metabolism, he came across an instance of their specific action, which suggested the possibility of diagnosing the condition of pregnancy by their means. And it was on the basis of the same methods as had been employed years before by himself and his followers in their preliminary theoretical investigations, that he was led to the great discovery of the demonstration of specific ferments in the blood-serum; that is to say, by the use of the optical method and of the dialysation process.

In view of the possibility of the practical application, in medicine, of these new methods of research, for the purpose of making differential diagnoses and of testing the functions of organs in various diseases, they have been taken up by many members of the medical profession. They were first employed by the gynæcologist; but there is now hardly any branch of medicine left in which the application of these new methods has not been attempted, and in the course

of time interest in these new weapons of research has rapidly increased. Much has been done, for the popularization of these methods, by the kindness which has been shown by Abderhalden and his assistants to all those who were willing to acquaint themselves with the rather complicated technique involved in them. He found room in his institute for all who wanted to come; every written inquiry was promptly answered; and reagents, such as placenta-albumen and peptone, in the preparation of which some difficulty is met with, were freely supplied from his laboratory.

The conception of "harmony and disharmony" has been employed by us, in order to represent the meaning we attach to Abderhalden's terms "fremd" and "eigen." These phrases, though they have been translated literally by some, do not seem to us to be amenable to direct translation.

In presenting this translation of the latest edition of Abderhalden's work on defensive ferments, I have been inspired by the hope of being able to excite or further, in regard to this important line of modern research, the interest of many to whom the German text may be inaccessible.

J. O. GAVRONSKY.

7, Cambridge Terrace,
Regent's Park.

February 23, 1914.

Preface to the Third Edition.

It took less than three months for the Second Edition to be exhausted, a pleasing sign that this new field of research has excited much interest. The number of works which have been completed on the basis of the principles there laid down, and of the methods there disclosed, exceeds one hundred and twenty! Every week brings forth new works. I am not sure whether that ought to give me entirely unbroken satisfaction. The fundamental works, which have arrived at a definite conclusion in regard to the elaboration of the dialysation process and of the optical method, have been produced during the last twelve years or so. The "theoretical" part, which pointed to the possibility of a sero-diagnosis of the functions of organs, was practically established six years ago. Experiments on animals were started on a large scale, so as to allow for all possibilities. Over and over again doubts cropped up which had to be settled. The astonishing result was found that, in disturbances of certain organs, only their albuminous constituents suffer decomposition. These discoveries were not made public, and only those results, which were established in investigations on

pregnancy, were published. Pregnancy is a condition which allows of no misinterpretation. In almost every case the clinical diagnosis can be compared, with absolute certainty, with the result of the serological diagnosis. The actual diagnosis either corresponds with the former, or it does not. These clear conditions, however, are not presented by the other morbid processes. A certain disease may be accompanied by all kinds of other disturbances of the functions of the organ. Very seldom are we faced with the presence of "pure" disease. Therefore, we are bound to conclude that only the worker in a hospital is in a position to judge, to what extent serological investigations can be applied for testing the functions of an organ. In this case two aims have to be distinguished. The serological diagnosis can, in many cases, widen our understanding of the disturbances occurring in a given disease. We gain an insight into long suspected functional troubles of certain organs, or discover that others, which had never been thought of, regularly produce disturbances in a certain disease. It is an entirely different question to ask whether the serological diagnosis of an organ can be applied to differential diagnosis, *i.e.*, whether we are entitled to accord a preference to this, as against any other, method.

Many years may be required before the question of the practical value of the methods worked out can