

# **THE NATURE OF ENZYME ACTION**

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The nature of enzyme action by W. M. Bayliss

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**W. M. BAYLISS**

**THE NATURE OF  
ENZYME ACTION**



# MONOGRAPHS ON BIOCHEMISTRY

EDITED BY

R. H. A. PLIMMER, D.Sc.

AND

F. G. HOPKINS, M.A., M.B., D.Sc., F.R.S.

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1913

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## PREFACE TO FOURTH EDITION.

THIS edition has been brought up to date by the addition of some new paragraphs and references.

More especially, the chapter on the mode of action of enzymes has been rewritten under a new title, while the "Supplementary Notes" have been embodied in the text.

W. M. B.

*April, 1919.*

## PREFACE TO THIRD EDITION.

A CONSIDERABLE amount of new matter has been added to this edition, and the continued discovery of further facts has rendered it necessary to revise certain paragraphs. At the same time, it has been possible to abbreviate the description of some other work which has shown itself unable to stand the test of renewed investigation.

Attention is particularly directed to the chapters on "Reversibility" and on the "Combination" between enzyme and substrate, as also to the section on anti-enzymes, which have, for the most part, been rewritten. It will be found that many important new discoveries have been made in these fields. The facts referred to have made some modifications necessary in the point of view taken in previous editions; but, for the most part, these are in the direction of simplification. It is satisfactory to note that the doctrine of the importance of surface phenomena, or adsorption, in the action of enzymes, advocated in these pages from the first, is becoming more and more widely recognised.

The use of the word "Nature" in the title of this monograph has been subjected to criticism. It is said that the "Nature of Enzyme Action" is not explained. My object is to compare the various activities grouped under the head of "enzymic" with those known as "catalytic". If it is found that their nature is the same, a group of facts is brought under the application of more general laws, and, as I understand it, that is what "explanation" in Science essentially is.

W. M. B.

UNIVERSITY COLLEGE, LONDON,  
*July, 1913.*

## PREFACE TO SECOND EDITION.

THE large amount of work on enzymes published in the short space of time since the first edition of this monograph was written necessitates the addition of much new matter.

The number of references in the Bibliography, in accordance with this increase in knowledge, has considerably increased.

In a few places some amplification has been thought desirable in order to render the meaning easier to understand.

Headings of paragraphs have been introduced. The reader will, I think, appreciate the lessening of the labour required to find what he may wish to refer to.

W. M. B.

1911.

## PREFACE TO FIRST EDITION.

THIS short monograph is based upon lectures given at various times in University College, London, and this fact may serve as the excuse for what some may regard as too definite a position with respect to certain disputed questions. It is, I venture to think, preferable to take a definite point of view, rather than to leave the study of the subject in a state of chaos. At the same time, one must always be prepared to correct one's views when evidence is brought against them. I have endeavoured not to slur over difficulties, where such really exist; as also to indicate the existence of points of view contrary to my own. It is quite possible, however, that, by inadvertence or ignorance, important facts may have been omitted.

Certain subjects of considerable interest in connection with the theory of the action of enzymes, such as the properties of colloids and the laws of adsorption, which were dealt with in some detail in the lectures, are here only treated in their immediate bearing on the facts under discussion.

No attempt has been made to put forward a complete bibliography in the list of literature at the end. This contains only those writings which have a more or less direct bearing on the subject and which are referred to in the text. In this list I have added, after each reference, the page of the text in which it is made use of, so that the insertion of names of authors in the general index is rendered unnecessary.

The detailed description of the properties of the large number of specific enzymes already known finds no place in this monograph, which confines itself to general properties more or less common to all enzymes.

W. M. B.