The Enzymes

VOLUME X

PROTEIN SYNTHESIS
DNA SYNTHESIS AND REPAIR
RNA SYNTHESIS
ENERGY-LINKED ATPases
SYNTHETASES

Third Edition

THE ENZYMES

Edited by PAUL D. BOYER

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Los Angeles, California

Volume X

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Preface

"DNA," "RNA," and "protein" have become part of the intellectual language of high school biology students and of better educated citizens generally. These substances are recognized as the core of molecular biology—they are the transmitters and effectors of genetic information. The remarkable advance in knowledge related to these substances has been accompanied by, and indeed has been made possible by, a growing body of information about the enzymes associated with them. Many things can now be said at a molecular level about the enzymes that are concerned with the synthesis of DNA, RNA, and proteins and about their metabolic transformations. Most of this volume serves to give such information, presented by outstanding researchers in the field.

The balance of the volume presents enzymology of another vital substance—ATP. ATP is almost as familiar to the public as DNA and RNA, and perhaps even more familiar to the biochemist. The discussion of energy-linked ATPases includes those of mitochondria and chloroplasts and the membrane ATPases concerned with active transport. Considerations of ATP cleavage accompanying muscle contraction and of ATP synthesis by oxidative and photosynthetic phosphorylation are beyond the scope of this volume and thus are not included. Satisfying descriptions of these processes at a molecular level are yet to be attained.

The Editor and Advisory Board are again gratified that nearly all of the authors of this volume are our first choices. Beyond making these excellent choices, I want to thank the Advisory Board for their help in planning the volume and assisting in other ways. Thanks are also due to the fine work contributed by the professional staff of Academic Press.

PAUL D. BOYER

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