components so that selection can be related to the work to be accomplished. The reviewer was surprised at the relatively small coverage given to applications to polymeric materials and the virtual omission of differential calorimetry. However, the orientation of the book is more theoretical than practical. Accordingly, the volume will be of continuing value to the experienced investigator in the field, as well as the novice.

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The Molecular Basis of Heredity. By A. R. PEACOCKE, M.A. D.Sc., Lecturer in Biochemistry, University of Oxford, and Fellow of St. Peter's College, Oxford, and R. B. DRYSDALE, B.Sc., Lecturer in Microbiology, the University of Birmingham. Butterworth Inc., 7235 Wisconsin Ave., Washington, D. C. 1965. viii + 180 pp. 14 × 22 cm. $7.25.

The field of molecular biology has progressed rapidly since the Watson–Crick helical DNA structure was proposed a little more than a decade ago. A major advance during recent years has been the identification of DNA as the genetic material and the elucidation of the molecular mechanism by which genes direct the synthesis of proteins in the cell. The foremost discovery was messenger RNA and the identification of the ribosome as the site for protein synthesis. This led subsequently to the isolation and characterization of transfer RNA and to the deciphering of the genetic code.

The purpose of this book is to provide the advanced undergraduate and beginning graduate student with a broad survey of past and current literature in the field of molecular biology. The authors begin by tracing the chemical and genetic evidence which indicated the importance of the nucleic acids in heredity. This is followed by a section describing the structures of DNA, RNA, and nucleoproteins, and chromosomal structure. The remaining half of the book is concerned with the relationship between structure and function of the nucleic acids, describing the literature on replication of DNA, the chemical modification of DNA and its relationship to mutagenesis, colinearity of the gene and the polypeptide chain, biological regulatory mechanisms, protein synthesis, and the genetic code.

There have been a large number of major advances in the field since this book was written. Khorana and his colleagues have succeeded in synthesizing sequence specific long-chain polynucleotides and have almost completely determined the coding properties of all 64 triplet codons. Extensive new information has emerged concerning the biochemical nature of suppression, a phenomenon whereby one mutation can "suppress" the effect of a second distal mutation. This has provided insight into the mechanism of chain termination and chain initiation in protein synthesis, and has led to a deeper understanding of the biochemistry of polar mutations. Finally the mechanism of lysogeny, *i.e.*, how a virus integrates into the bacterial host chromosome, has been shown to involve an intermediate circular form of the viral genome, and this has been a major advance in bacteriophage genetics.

To be of significant value therefore, this book must be revised to include these and other recent advances in this field. In its present form, the book will be of only limited value to the advanced undergraduate and beginning graduate student in molecular biology.

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