

PREFACE

Fifteen years ago we began assembling the material for the first edition of this book. That edition was based on our experience in teaching general biochemistry on both the Berkeley and the Davis campuses of the University of California. At that time there were few if any textbooks that could serve the needs of undergraduate majors and nonmajors enrolled in a one-semester introductory course. In the decade after the appearance of the *Outlines* in 1963 several other texts in general biochemistry have been published. Some of these far exceed the *Outlines* in the number of topics covered and the detail presented. Other, abbreviated texts are designed for the same audience. It is our hope that the present edition of the *Outlines* strikes a reasonable balance between these extremes.

Each subsequent edition of our book has reflected many of the developments in biochemistry since 1961. The increase in biochemical knowledge in that period has resulted in an increase in the size of the *Outlines* from 390 pages to 609 pages. The developments in molecular biology have necessitated in every edition revision and expansion of the several chapters in which nucleic acids and proteins are discussed. The material on photosynthesis and nitrogen fixation has undergone continued revision and updating. The increase in our knowledge of cell structure has prompted us to add a chapter not present in the first edition as well as material on the structure and composition of cellular components barely known in 1961. Finally, the primary subject on which our book is based—intermediary metabolism—has undergone repeated revision as new information was acquired on metabolism itself and on the processes by which that metabolism is regulated. A relevant

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example is the new information found in this edition on glutamate synthetase as a major reaction for incorporating NH_3 into organic combinations.

In preparing this and earlier editions we remain indebted to our students and colleagues who have used the book in their courses. In particular, we thank the students enrolled in Biochemistry 101AB at Davis, and I. H. Segel, who has taught the course at Davis for nearly a decade, for providing many helpful suggestions over the years. We also thank our colleagues G. E. Bruening, R. H. Doi and M. R. Villarejo who read certain chapters of the present edition. We are particularly grateful to E. Aaes-Jorgensen who read the entire book; he and his colleagues B. Jensen, O. M. Larsson, and P. Arends made many valuable suggestions for improving this edition.

Finally, we wish to again emphasize that this book is designed to introduce students to the subject of biochemistry through the theme of intermediary metabolism. This topic seems to be particularly appropriate for students not majoring in the subject.

The book has been translated from English into five other languages.

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