

surprising to witness the advent of subsequent volumes dealing with nonmammalian glycoconjugates, as well as with progress not covered in the first two volumes. It is to be hoped that the price will not repel students and researchers who are not financially well endowed; lower-priced, soft-cover editions may be a solution.

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Chemistry and Biology of Nucleosides and Nucleotides, edited by ROBERT E. HARMON, ROLAND K. ROBINS, AND LEROY B. TOWNSEND, Academic Press, New York, 1978, xxi + 468 pages, \$22.00.

This volume is a collection of twenty-eight papers that were presented at a Symposium of the Division of Carbohydrate Chemistry at the 172nd meeting of the American Chemical Society, held in San Francisco in 1976. The title of the symposium was the same as that of the present book, and it was also considered to be the Second International Round Table on Nucleosides and Nucleotides, the first one having been held in France in 1974. The papers summarize either ongoing or past research of the laboratories from which they originated.

It appears to the reviewer that the authors' manuscripts must have been retyped in a central office and then directly photocopied. The reproduction is very clear, neat, and easy to read. The drawings, graphs, and photographs of molecular models are excellent. A serious problem, though, is the number of typographical errors running through the volume. One paper is so badly treated that I found it rather amusing to read; it was fun to unscramble the letters in order to discover what the words were supposed to be! On page 382, below the Scheme, part of a sentence or paragraph must be missing, and the same appears to be the case on page 405 below the Figure. It is to be hoped that the publisher will offer some errata pages to purchasers of this book. Another problem is the thoughtless manner in which words, formulas, and numbers are divided at the ends of lines. Words are often divided without respect to proper syllabication. On page 232, the number 1.5 is divided, and, on page 256, the formula $(\text{CH}_3)_3\text{SiClO}_4$ (with the oxygen missing) is likewise broken up between two lines; these are just two examples of an unfortunate pattern that runs throughout the book. In addition, there are many places where spacings between words in chemical names are omitted and the parts are run together. In the text of one paper, the numbers for the formulas of compounds are not underlined, which means that they appear to be the same as reference numbers, leading to confusion in a few places. In spite of this lack of editing and proofreading, those knowledgeable about the work reported here should encounter no serious problems in reading the articles.

A wide range of topics is covered, but, despite the title, most of the papers discuss organic chemistry, with heavy emphasis on heterocyclic aspects. Most of the

biology deals with chemotherapy, primarily anticancer and antiviral results, rather than with biochemistry. One could wish that a greater effort had been made to achieve a little better balance between organic chemistry, chemotherapy, and biochemistry. Only one discussion is completely concerned with chemotherapy, whereas many others report some results within the framework of the design and synthesis of compounds. Two papers are concerned with enzymology—one on irreversible inhibitors, and the other on tight-binding inhibitors. Most of the articles describe the synthesis of nucleoside analogs, usually with alterations in the nitrogenous base, some treatments being more mechanistic than others. Several papers discuss the specificities of glycosylation, and another expounds in detail on the formation of anomers of 2'-deoxynucleosides. The title of one paper, a very good one on the subject it actually covers, gives the impression that it discusses the mechanism of nucleoside synthesis in general, when, really, it only discusses the mechanism of Friedel-Crafts-catalyzed reactions. The subject of *C*-nucleosides is treated in four articles, and others are devoted to the synthesis of analogs of nucleosides that contain amino and thio sugars. The volume is rounded out by papers on analytical techniques (n.m.r. spectroscopy and liquid chromatography), protective-group chemistry, and polynucleotide chemistry. The last includes two papers, by Khorana's large group of workers, on the total synthesis of a gene. There is an index, but its usefulness is questionable, as it is barely even an outline of what is actually in the book. During reading, the reviewer recorded a significant number of important words and phrases, and later found that only about 20% of them were included in the index list.

This volume can be recommended to anyone working in the field. However, it must be mentioned that any investigator really cognizant of the primary literature will find little that is new herein. Nevertheless, it is useful to have the information, with references, summarized in one place. The book will be of most value to those breaking into the field, particularly graduate students and postdoctoral researchers. The price of the volume has been kept low, compared to the price of most specialized books these days, and everyone concerned with that effort deserves thanks.

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Carbohydrate-Protein Interaction, edited by IRWIN J. GOLDSTEIN, ACS Symposium Series, Volume 88, American Chemical Society, Washington, D.C., 1979, xi + 222 pages, \$22.50.

There is an emerging practice for presentations at symposia to be published in book form. This practice, although desired by much of the scientific community, leads to redundancies in the presentation of data and new conceptual material. The Foreword to *Carbohydrate-Protein Interaction* states: "Papers published in the ACS