

to prepare radiolabeled I using a modified literature method (12). Each rat received 1.1 mg of I/kg iv, corresponding to  $\approx 100 \mu\text{Ci}$ . Data were collected every 2 sec for the first 300 sec, every 20 sec for the next 3000 sec, and every 200 sec until the end of the study. Radioactivity measured in the loop was corrected for decay and background.

A typical plot showing the results obtained is shown in Fig. 1. The data were weighted inversely to the time interval of collection and analyzed by the program of Provencher<sup>1</sup>. The computer program automatically selected the best number of exponential terms required by the data according to an *F* test with a nonlinearity correction. The best-fit values for the rate constants were 7.90, 1.45,  $2.96 \times 10^{-1}$ ,  $3.50 \times 10^{-2}$ , and  $2.52 \times 10^{-4} \text{ min}^{-1}$  for Rat 1 and 4.18, 1.10,  $2.69 \times 10^{-1}$ ,  $3.33 \times 10^{-2}$ , and  $1.60 \times 10^{-4} \text{ min}^{-1}$  for Rat 2. The five-exponential equation that gave the best fit to the data for Rat 1 was used to calculate the solid line in Fig. 1. The fastest observed rate constant may be due to a mixing or rapid distribution within the animal; however, the remaining four exponentials are similar to the values obtained previously (2, 4).

- (1) J. W. Triplett, D. W. A. Bourne, and R. B. Smith, *Int. J. Appl. Radiat. Isot.*, **29**, 189 (1978).
- (2) W. Wolf and R. C. Manaka, *J. Clin. Hematol. Oncol.*, **7**, 79 (1977).
- (3) R. F. Brown, F. R. Carson, L. Finkelstein, K. R. Godfrey, and R. P. Jones, *Med. Biol. Eng. Comput.*, **17**, 216 (1979).
- (4) D. M. Taylor, *Biochimie*, **60**, 949 (1978).
- (5) D. G. Gardner, J. C. Gardner, G. Laush, and W. W. Meinke, *J. Chem. Phys.*, **31**, 978 (1959).

- (6) D. G. Gardner, *Ann. N.Y. Acad. Sci.*, **108**, 195 (1963).
- (7) S. M. Pizer, A. B. Ashare, A. B. Callahan, and G. L. Brownell, in "Biomathematics," vol. I, "Concepts and Models of Biomathematics Simulation Techniques and Methods," F. Heinmets, Ed., Dekker, New York, N.Y., 1969, p. 105.
- (8) A. B. Callahan and S. M. Pizer, in "Natural Automata and Useful Simulations," H. Patter, Ed., Spartan, Washington, D.C., 1966, p. 149.
- (9) S. W. Provencher, *Biophys. J.*, **16**, 27 (1976).
- (10) S. W. Provencher, *J. Chem. Phys.*, **64**, 2772 (1976).
- (11) C. L. Litterst, I. J. Torres, and A. M. Guarino, *J. Clin. Hematol. Oncol.*, **7**, 169 (1977).
- (12) S. C. Dhara, *Indian J. Chem.*, **8**, 193 (1970).

D. W. A. Bourne \*  
J. W. Triplett

College of Pharmacy  
University of Kentucky  
Lexington, KY 40506

T. L. Hayden

Department of Mathematics  
University of Kentucky  
Lexington, KY 40506

P. A. DeSimone

College of Medicine  
University of Kentucky  
Lexington, KY 40506

J. D. Hoeschele

Oak Ridge National Laboratory  
Oak Ridge, TN 37830

Received June 8, 1979.

Accepted for publication September 14, 1979.

The authors thank J. D. Butts and L. K. McWhorter for technical assistance.

## BOOKS

**Terpenoids and Steroids, Vol. 8.** Senior Reporter, J. R. HANSON. The Chemical Society, Burlington House, London W1V 0BN, England. 1978. 301 pp. 15 x 22 cm. Price \$50.00. (Available from Special Issues Sales, American Chemical Society, 1155 16th St., N.W., Washington, DC 20036.)

This book is the eighth volume on terpenoids and steroids in a valuable series initiated 8 years ago. The aim of each series of Specialist Periodical Reports is to provide a systematic, comprehensive, and critical review of progress in the major areas of chemical research. The various series, which now total 36, are published annually or biennially on such topics as Environmental Chemistry; Biosynthesis; Foreign Compound Metabolism in Mammals; The Alkaloids; Carbohydrate Chemistry; Amino-acids, Peptides, and Proteins; and Photochemistry.

This volume does not contain a subject index, but it is organized in a systematic manner which facilitates finding any desired information. The five pages in the Table of Contents outline this volume in detail. The chapters are divided into many sections, which are identified in bold type in the text as well as in the Table of Contents. These sections are divided into subsections. Chapter titles are found at the top of every other page of the text. The author index includes 3300 names and is helpful to anyone following the research of a given individual.

This review is illustrated with drawings of 1700 chemical structures. It is documented with 1650 references, most of which are listed at the bottom of the page where first used in a given chapter.

Part I covers the terpenoids and is divided into chapters that include Monoterpenoids, Sesquiterpenoids, Diterpenoids, Triterpenoids, and Carotenoids and Polyterpenoids. Part II, which covers steroids, is divided

into two chapters entitled Physical Properties, and Steroid Reactions and Partial Syntheses. No compilation of references to review articles on subjects related to terpenoids or steroids is included in this volume as in many of the previous volumes.

The chapter on Steroid Reactions and Partial Syntheses is long and is divided into two sections. The first section is divided into subsections based on more common functional groups, a subsection on compounds of nitrogen, sulfur, and selenium, and subsections on such important topics as molecular rearrangements, functionalization of nonactivated positions, and photochemical reactions. The section on partial syntheses is divided into the following subsections: cholestane derivatives and analogs, vitamin D and its metabolites, pregnanes, androstanes, cardenolides, secosteroids and cydosteroids, heterocyclic steroids, microbiological oxidations and reductions, and miscellaneous syntheses.

The editor and six reporters who prepared this volume are to be commended for maintaining the high standards set by the previous volumes in this series. Everyone interested in the chemistry of terpenoids and/or steroids should have access to this volume and others in the series. Many terpene and steroid chemists will want copies on their desk. This series is a great timesaver and a source of many ideas. I highly recommend it.

Reviewed by Norman J. Doorenbos  
College of Science  
Southern Illinois University at  
Carbondale  
Carbondale, IL 62901