absorption to be used in the second and possibly subsequent cores.

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# Book Review

**Carbon-14 Compounds.** By John R. Catch. Butterworth, Washington, D. C., 1961. 128 pp., $5.50.

The author is manager of the Organic Department at The Radiochemical Centre, Amersham, England. He has had many years of experience with carbon-14 compounds, especially with their synthesis.

The expressed purpose of this small book is to guide the reader to the literature and use of carbon-14. Catch begins by introducing the reader to the general literature on carbon-14 and then, in the following seven chapters, considers the production of carbon-14, chemical synthesis, biosynthesis, peculiar features of carbon-14 compounds, analytical application, measurement of carbon-14, and precautions for its safe handling. The chapter entitled "Peculiar Features of Organic Compounds" includes such varied subjects as isomerism, double labeling, isotopic asymmetry, isotope effects, radiation decomposition, and the nomenclature of carbon-14 compounds. The book contains a four-page appendix, which is a review of the publications that appeared during the preparation of the manuscript. No single subject is treated exhaustively, but most subjects are well documented; nearly 700 references are given. The extensive bibliographies are useful because the most recent comprehensive textbook on the subject of carbon isotopes appeared twelve years ago.

Catch writes in an easy, conversational style, and the reader will proceed without difficulty until he is plunged into the 58-word sentence in the middle of page 63.

The literature citations contain several errors. The confusing references on pages 65 and 66 to the review by Burr are collectively one example. The index comprises five pages, yet it is very cursory. For example, there is a good discussion of cyanide–$C^{14}$ synthesis on pages 26–28, but reference to this discussion is not included in the index. As a result of several such omissions, the reader is forced to check the text as well as the index. This is not a formidable task in a book of this size.

All of the illustrations are located in the chapter entitled "Chemical Synthesis." A number of these could be omitted without detracting from the value of the book. The detailed discussion of nomenclature seems excessive compared with the brevity of treatment of other topics. The chapter, "Biological Methods of Labeling," reflects the growing interest, in both England and the United States, in biosynthesis with carbon-14. This chapter is interesting and informative but possibly will not be as useful as the chapters, "Peculiar Features," "Measurement," and "Precautions." The last chapter will be particularly valuable to anyone who considers carbon-14 to be an exceedingly hazardous material.

In brief, *Carbon-14 Compounds* is not a textbook. Instead, it is a guide that contains much good information and advice for organic chemists and biochemists who are beginning to use carbon-14. It will be equally useful to the expert for the references it contains.

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*(About the Reviewer: Dr. Vernon F. Raaen is currently a member of the Organic Chemistry Group at the Oak Ridge National Laboratory. He received his M.S. degree in organic chemistry at the University of Minnesota in 1950 and came to Oak Ridge in that year. He received his Ph.D. degree at the University of Tennessee in 1958. His work at the Laboratory has been research in organic chemistry with carbon-14 and the isotopes of hydrogen. He is currently coauthoring (with H. P. Raaen and G. A. Ropp) a book on the use of carbon-14 in organic chemistry.)*