Book Review

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The Total Synthesis of Natural Products, Volume 8. Ed. by J. APSIMON, Wiley-Interscience, John Wiley and Sons, 605 Third Avenue, New York, NY 10158. 1992. ix + 704 pp. 15 × 22.5 cm. $150.00. ISBN 0-471-54507-4.

The Total Synthesis of Natural Products, Volume 8, edited by John ApSimon, provides up-to-date reviews of several important research areas.

The first chapter is a remarkably complete and concise summary of the synthetic efforts in the tri- and tetracyclic diterpene area. It is extremely well organized and grouped according to biogenetic classifications. The retrieval of specific examples is made easy by compound type as well as by authors of the syntheses. The review covers the literature of almost sixty years with the most recent references from 1989. It contains 278 references, some of them multiple. Of special interest is the last section of the chapter discussing unusual or rearranged skeletal types of diterpenes.

Extensive coverage of polysaccharide synthesis is provided in the second chapter which contains 123 references through 1986. This chapter is divided into sections by class of polysaccharides. It also reviews the major methods of polysaccharide synthesis by type of condensation reaction. The basic glycosylation reaction is covered extensively, as are polycondensation and enzymatic methods of synthesis. This field underwent an explosive growth in the last four years; thus most of the latest results are not covered. It may be beneficial to update this exciting field in the next volume to cover the literature since 1986.

The third chapter reviews the naturally occurring quinones. This is an enormous field of endeavor as evidenced by 533 references contained within this chapter. This review is also organized by class: benzo-, naphtho-, and anthraquinones are covered in the respective sections. Special classes, such as heterocyclic and terpenoid quinones, are reviewed toward the end of the chapter. This field spans more than 125 years of chemistry of these compounds. The modern methods of synthesis using metallocycloadditions should probably have been highlighted.

Spiroketal-containing natural products are reviewed in the fourth and final chapter. This is a highly focused review covering the literature in this field between 1970 and 1989, which was a period of growth in the synthesis of large oxygenated natural products of this type. Monensin total syntheses have been excluded from this chapter due to earlier coverage of this topic. The review is organized by the type of compounds and the volume of synthetic activity, i.e., insect pheromones, talaromycins, calcimycins, mylbemycins, aplysiatoxin, etc. The last section covers miscellaneous natural products that contain the spiroketal moiety but cannot be grouped into the large classes, for example, steroidal sapogenins, hop oil metabolites, and others. This review provides an indispensable guide to a matured field of synthesis and contains 144 references, some multiple.

In summary this is another excellent monograph, invaluable to a synthetic practitioner. All chapters are well written by experts in the respective fields, and the subject index at the end provides an easy means of information retrieval. I highly recommend this as an addition to any library.

TOMAS HUDLICKY, *Virginia Polytechnic Institute and State University*