

Book Reviews

Computer-Aided Molecular Design. Applications in Agrochemicals, Materials, and Pharmaceuticals. Edited by C. Reynolds, M. Holloway, and H. Cox. American Chemical Society, Washington, DC. 1995. x + 428 pp. 15.5 × 23.5 cm. ISBN 0-8412-3160-5. \$109.95.

This book contains papers based on presentations made at a symposium sponsored by the Division of Computers in Chemistry and the Division of Agrochemicals at the 207th National meeting of the American Chemical Society in San Diego, CA, on March 13–17, 1994. The book is relatively timely, with numerous references to articles published in 1994. The papers have been published from the authors' originals. While the type styles of each chapter vary, the overall quality of the reproduction is good. Fifteen color plates are included, although they are unfortunately collected together at the center of the book. Indices are included for author, affiliation, and subject, and the subject index seems complete.

As the title indicates, the book is divided into three broad areas of application of computer-aided molecular design (CAMD): agrochemicals, materials, and pharmaceuticals. There is also an introductory chapter at the beginning which surveys current approaches in CAMD. However, this is not a book for the uninitiated in the field. Many of the chapters would prove quite difficult for the beginner without more background.

The book focuses, intentionally, on the applications of CAMD techniques to specific problems. However, several of the papers focus mainly on new methods and use the applications to illustrate the methods. The methods discussed range quite widely and include various QSAR and statistical methods, prediction and use of metabolism, 3D QSAR, de novo design of ligands to fit binding sites, genetic algorithms, quantum mechanics, and simulations of biological membranes.

This book would be of use to the newcomer in the field mainly as an overview of the diversity of methods and applications of CAMD. The chapters are generally written at a level more suited to the specialist, for whom this book is likely to be a useful reference.

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To See the Obvious. By Arthur J. Birch. In **Profiles, Pathways and Dreams.** Edited by Jeffrey I. Seeman. American Chemical Society, Washington, DC. 1995. xxviii + 269 pp. 15 × 23 cm. ISBN 0-8412-1840-4. \$24.95.

Arthur Birch is undoubtedly one of the major figures in organic chemistry in this century. This autobiography, as provocative and outspoken as its author, answers Arthur Birch's own question: "Why should a 10-

year old boy, in the mid-1920's in isolated Sidney, Australia, decide to become a scientist? I had no models in my local family (mostly Australian farmers)... I had a burning desire to know all about everything and was prepared to work to acquire this knowledge." He pioneered the important synthetic technique known as the "Birch reduction" and studied its many applications, some of them of industrial importance. He also developed a clear mechanistic picture of the Birch reduction.

His next major contribution was in the biosynthesis of polyketides. This theory explained the formation of many classes of aromatic natural products. Although there had been earlier speculation by Collie about this subject, Arthur Birch brought precise and profound thought to this fundamental biosynthetic process. He followed up his theory with the appropriate feeding experiments and showed that he was always right.

A third stage in his career was the development of methodology for the use of organometallic compounds in the synthesis of natural products. Here again, he was a pioneer.

Forty-eight wonderful photographs grace this volume, including Birch at the Dyson Perrins Laboratory (Oxford) bench where the first Birch reduction was carried out; Birch's father "a pastry chef who refused to eat his own beautiful confections" and his mother "at my wedding; all but indomitable"; and many lovely photos of Bob Woodward, Gilbert Stork, Carl Djerassi, Vlado Prelog, Alex Todd, John Cornforth, and myself, some of us with varying degrees of beards and at varying degrees of age and wisdom.

This lively biography shows the importance of his work and the enthusiastic and sometimes roguish way in which he interacted with his fellow professors and his superiors in life. The late Sir Robert Robinson peers out from the pages of this book over the shoulder of Arthur Birch. They had their better qualities in common.

Birch, with the refreshing candor of the ingenue that he is not, provides us with over 50 pages of philosophy on such topics as creativity, funding of science, national and personal versions of science, the roles of women, and science and safety in the laboratory. The accompanying picture of Birch doing a Birch reduction is modestly alarming and is in keeping with his character, "the open hood, cigar [in Birch's mouth], lack of safety glasses...".

This is a book that all chemists and biochemists can read with pleasure and amusement while a close attention to the text will reveal that there is also here deep thought on chemistry and on life in general.

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