wondering about details of the method. He also fails to give the reader an appreciation of the difficulty of applying the transition-state seeker to chemical mechanisms in general. The book ends with a discussion of half a dozen applications that will give the reader some flavor of recent applications of calculational methods to problems of chemical interest.

Although the book is well written, it is not clear what its primary intended audience would be. Unfortunately, the level of treatment is such that there is considerably more mathematical detail than the experimentalist interested in using the book as a compilation of what can be gained from using calculations would likely be interested in, but it is not sufficiently detailed to meet the needs of the person interested in mathematical aspects of the computations. It is probably best suited for use in an advanced undergraduate or beginning graduate course designed to introduce students to molecular modeling.

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S0163-3864(96)00635-0

Computer-Aided Molecular Design: Applications in Agrochemicals, Materials and Pharmaceuticals. Edited by C. H. Reynolds (Rohm and Haas Company), M. K. Holloway (Merck Research Laboratories), H. K. Cox (Zeneca Ag Products). American Chemical Society, Washington, DC. 1995. x + 428 pp. 15 × 22.5 cm. $109.95. ISBN 0-8412-3160-5.

Computer-Aided Molecular Design (CAMD) consists of many different methods aimed at solving a variety of chemical problems. As a collection, these methods form a set of powerful tools that are being used in a number of industrial and academic laboratories to design and develop new chemical products. This book brings together a number of examples in which CAMD has increasd the mechanistic understanding and/or provided energetic and structural information that has assisted in the design of new drugs, agrochemicals, and materials. The book is well organized and referenced (ca. 850), and each chapter is lucid. The balance between the theoretical bases behind the methods, the application of the methods, and results is well maintained.

Chapter one provides a short historic overview of computational chemistry and provides the reader with a brief description of the various CAMD techniques. The description covers the scientific underpinning of each method, what type of information can be obtained, and computational cost relative to other methods. In addition, modeling paradigms that have been found to be of general use such as structure-based design, novel lead generation, protein homology modeling, and catalysis simulation are discussed. The remainder of the book is divided into three sections. The sections contain case studies aimed at the understanding of the underlying mechanisms and/or design of new products in pharmaceutical, agrochemical, and material sciences. Molecular dynamics studies are presented on backbone-modified antisense oligodeoxynucleotides, drug diffusion in biomembranes, polyelectrolyte adsorption on mineral surfaces, and the behavior of organic molecules in zeolites. Studies using Genetic Algorithms (GA) to design a screen for antihinovirus agents and new materials are reported. In addition, case studies using Quantitative Structure Activity Relationships (QSAR), structure-based design, de novo design, and quantum mechanics are reported.

Overall, this book will be most useful to chemists who wish to apply CAMD to their own research. It provides a collection of examples that clearly demonstrate how CAMD can be used to assist in moving a project forward without setting up unrealistic expectations.

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S0163-3864(96)00637-4

Chemistry and Toxicology of Diverse Classes of Alkaloids. Edited by Murray S. Blum (University of Georgia). Alaken Incorporated, Fort Collins, CO. 1996. v + 386 pp. 15 × 22.5 cm. $99.50. ISBN 1-880293-06-4.

Five chapters on the chemical and toxicological properties of alkaloids from terrestrial and marine sources and one chapter describing alkaloids as anticancer agents comprise this book edited by M. S. Blum. *Chemistry and Toxicology of Diverse Classes of Alkaloids* is a companion volume to *The Toxic Action of Marine and Terrestrial Alkaloids* published recently by Alaken, Inc., which was reviewed in this journal (*J. Nat. Prod.* **1996**, *59*, 1218−1219).

In this book, G. T. Tan and J. M. Pezzuto describe *Toxic Alkaloids Pertinent to Cancer Chemotherapy* (711 references); Atta-ur-Rahman and M. I. Choudhary discuss *Toxic Alkaloids and Other Nitrogenous Compounds from Marine Plants* (87 references); M. S. Blum elaborates the *Chemistry and Toxicology of Arthropod Alkaloids* (112 references); W. Z. Antkowiak details *The Chemistry and Toxicology of Mushroom Alkaloids* (387 references); J. M. Jacyno delineates *The Chemistry and Toxicology of the Diterpene Alkaloids* (100 references); and T. Higa and J.-I. Tanaka survey *Bioactive Marine Alkaloids from Okinawan Waters* (125 references).

The chapter by Tan and Pezzuto focuses on specific alkaloids from the 15 families of antitumor alkaloids that have demonstrated clinical antitumor activity. Their survey provides insight into botanical source and occurrence, chemistry and structure−activity relationships, proposed biochemical mechanisms of cytotoxic/antitumor activity, clinical pharmacology and pharmacokinetics, clinical applications and toxicology, and mechanism of resistance to antitumor alkaloids. Pertinent alkaloids discussed include *Vinca* alkaloids, acronycine, camptothecin, *Cephalotaxus* alkaloids, ellipticine, indicine *N*-oxide, and swainsonine. This richly detailed presentation is accompanied by over 700 citations.

Atta-ur-Rahman and Choudhary describe toxic nitrogenous natural products derived from marine plants and microorganisms that are not restricted to alkaloids in a chapter that is complementary to the review of toxic alkaloids from marine invertebrates in the companion volume (see above). Their review provides toxicological information on guanidine alkaloids, indole alkaloids, pyrrole alkaloids, and numerous miscellaneous alkaloids including cyanocycline A, PB-1, majusculamide C, malyngamide F, prorocentrolide, heptatotoxin, fellutamide A, homothamnin A, and cylindrospemopsin.

Evolutionary developments have propelled arthropods into a position of ascendancy with 80% of all animals being members of the phylum. Terrestrial arthropods are dominated by insects but also include invertebrates such as harvestmen, centipedes, millipedes, and spiders. The defensive secretions of arthropods generally are fortified with alkaloids. Blum describes compound classes such as pyrrolidines, pyrrolines, and pyrroles; piperidines, piperideines, and pyridines; indolizidines; pyrrolizidines; coccinellines; exochomines; adaline; quinazolinones; pyrazines; tetraponerines; indoles; quinolines; and pederin. Fourteen different classes of alkaloids have been identified as arthropod natural products, many of them possessing very unique structures.

Antkowiak provides a comprehensive survey of alkaloidal mushroom toxins that is illustrated by nearly 400 literature citations. The most toxic mushrooms, Death Cap (*Amanita phalloides*) and Destroying Angel (*Amanita virosa*), cause tragic poisonings yearly in the western United States. Mushroom toxicity may be derived from toxins other than the constituents of the organism itself; e.g., following the Chernobyl nuclear accident in 1986, increased levels of ^{137}Cs and ^{134}Cs contents were observed in mushrooms from the vicinity. Under the heading of hepato- and nephrotoxins are discussed phalloides syndrome (acute liver failure), orellanus syndrome (acute renal failure), and *Gyromitra* syndrome. Intoxications caused by mushroom neurotoxins include muscarine syndrome and pantherine syndrome. Intoxications evoking inebriations or hallucinations are psilocybin syndrome, bufotenine and its congeners, psychoactive effects of *Gymnopilus spectabilis*, and acromelalga syndrome. Intoxications affecting the hematologic system are *Coprinus* syndrome and mushroom toxins causing hemolysis such as phallolysin and constituents of *Paxillus involutus*. Intoxications evoking gastrointestinal syndrome are also documented.

Jacyno's chapter on diterpenoid alkaloids, of which more than 400 are known, points out that a major reason for current interest in their pharmacology and toxicology is derived from their potential use as novel pharmacological agents and molecular pharmacological probes. This chapter provides an update of a 1983 review by Benn and the author. A summary of pharmacological data is provided for 40 compounds from *Delphinium* and *Aconitum*. Human poisoning, cardiovascular toxicity, and ocular toxicity are discussed.

Higa and Tanaka's chapter details the toxicological properties of cytotoxic nitrogen-containing compounds from marine organisms inhabiting the 50 islands comprising Okinawa. Forty-eight algal species have been screened; the bioactive compounds isolated from these organisms include indoles, manzamines (carbolines), oxazoles and thiazoles, polyketide amides, and pyridine alkaloids.

The claim by the Editor that "this volume illuminates a wide diversity of alkaloids as remarkable natural products from both a structural and pharmacological standpoint" is borne out in each of the six chapters. The book is highlighted by the extensive and comprehensive chapters on *Toxic Alkaloids Pertinent to Cancer Chemotherapy* and *The Chemistry and Toxicology of Mushroom Alkaloids*, each of which serves as a major reference source in their subject area. Furthermore, the other four chapters are solid contributions on more specialized topics. Although the lack of either a subject or an organism index is a serious deficiency, *The Chemistry and Toxicology of Diverse Classes of Alkaloids* and its companion volume *The Toxic Action of Marine and Terrestrial Alkaloids* both may be recommended for purchase by chemists, toxicologists, pharmacologists, and neurophysiologists and by organizations whose clients are interested in the chemical and pharmacological properties of alkaloids.

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NP960636X

S0163-3864(96)00636-2

African Ethnobotany: Poisons and Drugs: Chemistry, Pharmacology, Toxicology. By H. D. Neuwinger (St. Leon-Rot, Germany). Chapman & Hall, Weinheim, Germany. 1996. xviii + 941 pp. 19 × 27 cm. $248.00. ISBN 0-532-42154-5.

The use of plants in the preparation of arrow poisons remains one of the least understood aspects of indigenous plant use in Africa. The author correctly remarked in the opening paragraph of this important book that: "seldom has there been as much fantasy, speculation and even nonsense written about a single subject as African arrow poisons." The author laments the fact that only very little factual information exists on the subject. This book is therefore an important and welcome contribution to the ethnobotany of African plants used in the preparation of arrow poisons.

It is an immensely valuable book, which adds much to understanding the chemistry, pharmacology, and toxicology of more than 240 poisonous plants. It gives a detailed account of the use of subject plants in various parts of the continent. The plants are arranged alphabetically according to families, and within each family the genera and the species are also arranged alphabetically. The names of the species have been carefully checked to avoid listing synonyms as separate species. The vernacular names are included for each species, with the languages grouped according to the countries where they are used. Chemical structures are provided for the major constituents listed. The bibliography is quite extensive and would be valuable to graduate students and scientists looking for a good overview of the subject. The book has a few obvious flaws; for example, many plants included in the collection are not in fact hunting poisons but fillers, carriers, and masking