Book Reviews

Biologically Active Natural Products: Pharmaceuticals. Edited by Stephen J. Cutler and Horace G. Cutler (Mercer University, Atlanta, GA). CRC Press, New York, NY. 2000. xvi + 277 pp. 17.5 × 25 cm. $99.95. ISBN 0-8493-1887-4.

This book consists of a series of 18 independent chapters by contributing authors describing various aspects of natural products chemistry as related to the development or potential development of pharmaceuticals. The chapters offer concise, readable accounts of similar length (about 10−14 pages), and all include relevant references. Although there are a couple of chapters that could be described as general overviews, most of the entries cover specialized subjects of interest in the contributing authors' laboratories. Some emphasis is placed on coverage of assorted projects in plant natural products chemistry, as 13 of the 18 chapters focus on studies of plant metabolites. This volume apparently arose, at least in part, from a symposium at an ACS meeting in 1997. This is consistent with the fact that only very few references are cited in the volume from as late as 1998. The chapters are uniformly neat, generally well proofed, and attractively illustrated. Each has a table of contents, and subject overlap among chapters is limited.

The chapters are more or less the standard types of entries one expects in such a compilation. Some of the more distinctive chapters include an introductory general chapter on agrochemicals and pharmaceuticals (D. Wedge and N. D. Camper), an analysis of the NCI's plant collection efforts with regard to their effectiveness in generating taxonomically representative samplings (J. Miller and R. Gereau), a detailed overview of an ICBG program directed toward investigation of tropical plants (D. Kingston et al.), and a treatise on issues involved in commercialization of natural products (J. McChesney). Some chapters can be categorized as general descriptions of individual research programs in certain areas, such as plant-derived antifungals (A. Clark and L. Walker), dereplication of microbial extracts (K. Alvi), bioactive marine natural products (K. El Sayed et al.), antimutagenic and cytoprotective natural products (L. Mitscher et al.), and plant-derived anticancer agents (A. D. Kinghorn et al.). Three chapters describe synthetic or semisynthetic structure−activity relationship studies of compound classes, including derivatives of etoposide, camptothecin, colchicine, and other metabolites (K.-H. Lee), artemisinin analogues (M. Avery et al.), and various aromatic plant metabolites, including isochromans, miltirone, and duclauxin (G. Majetich). Other entries summarize progress in studies of acetogenins (H. Johnson et al.), phenylpropanoid glycosides (A. Sneden); lobeline (C. McCurdy et al.), reactive quinones (R. Hudson and L. Viranga Tillakeratne), and ginseng standardization (F. Soldati). The remaining chapter describes a molecular modeling study of binding of an electrophile to glutathione S-transferase, an enzyme involved in a variety of processes, including detoxification and cellular protection (J. Buolamwini and F. Ali-Osman).

There does not seem to be a particular target audience for this book aside from those interested in reading about diverse, selected topics in natural product chemistry. The chapters generally provide thorough, though not exhaustive coverage of the topics listed. This volume would be a worthwhile addition to a Departmental library.

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NAFANUA. Saving the Samoan Rain Forest. By Paul Alan Cox (U.S. National Tropical Botanical Garden). W.H. Freeman and Company, New York, NY. 1999. 238 pp. 14.5 × 23 cm. $14.95 (paperback). ISBN 0-7167-3563-6.

Paul Cox's account of his work as an environmentalist and ethnobotanist in Samoa will be of interest to anyone concerned with conserving biodiversity and its myriad products. His approach to conservation has valuable lessons to both scientists and environmentalists that work in the tropics. Cox works effectively on local, national, and international levels, from single villages in Samoa to governments and businesses in the United States and Europe.

As the title suggests, the primary emphasis of the book is conservation of rain forests in Samoa. Cox describes how a village was ordered by the Samoan government to pay $65,000 for the construction of a new elementary school. Remarkably, the order was followed by a $65,000 offer to log the region's only remaining primary forest. Forced to choose between their children's education and the forest, the villagers reluctantly agreed to let the logging begin, the description of which is gut-wrenching. Cox ultimately raised the money for the school, with help from scientists and businessmen worldwide. At the same time, he worked with the village chiefs to draft a covenant to protect the forest. Cox's success in such endeavors is directly tied to his deep appreciation and understanding of the Samoan culture and language.

He used a different strategy to promote conservation in American Samoa, a territory of the United States. He took advantage of its territorial status to lobby U.S. politicians for the creation of a U.S. National Park, no small feat during the Reagan administration. To protect the endangered Samoan flying fox from commercial hunters, he worked to halt trade in the species by having it listed on the Convention on International Trade in Endangered Species ("CITES"). When the U.S. Fish and Wildlife Service resisted his efforts, he turned to a Swedish colleague, whose government submitted the proposal. The proposal was adopted and commercial traffic in the specieswas halted.

I compared Cox's book with another recent publication, "Requiem for Nature", by ecologist John Terborgh. He describes how poverty, corruption, institutional weakness, political instability, and exploitation have combined to destroy tropical habitats. Without profound changes, he argues that the same fate will befall the developing world's remaining forests. Terborgh believes that an "internationalization" of nature protection is perhaps the best way to conserve biodiversity, combined with the strengthening of the institutions that protect nature in developing countries.

While Terborgh's proposals may indeed be the best long-term solution to deforestation in the developing world, in many areas they will be difficult to implement soon enough to be relevant to conservation. Cox's work in Samoa demonstrates how much an individual scientist can accomplish when he or she works in a way that recognizes local customs and realities and applies the resources of a global network of colleagues from science, business, and government.

The book is eminently readable but occasionally lapses into the overly dramatic. But anyone making an impact on conservation like Paul Cox is entitled to a little excess.

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Recent Advances in Carbohydrate Engineering. Edited by H. J. Gilbert (University of New Castle upon Tyne, U.K.), G. J. Davies (University of York, U.K.), B. Henrissat (CNRS, Marseille, France), and B. Svensson (Carlsburg Laboratory, Denmark). The Royal Society of Chemistry, Cambridge, U.K. 2000. x + 312 pp. 15.5 × 23.5 cm. $150.00. ISBN 0-85404-774-3.

This book is a compilation of the 36 lectures presented at the 3rd Carbohydrate Bioengineering Conference held at the University of Newcastle upon Tyne, England, in April of 1999. The text is divided up into eight different sections, two with only one contribution each (Keynote Address, Post-translational glycosylation of proteins) and one with eight (Structure of the catalytic domains of carbohydrate modifying enzymes). The book also includes a small index (4 pages in length).

Most of the articles in the monograph deal with glycosidases. In this specific area, there are several articles aimed at better understanding the mechanisms (retention of configuration/inversion) of glycosidase activity, as well as the use of glycosidases for the preparation of oligosaccharides. The influence of structural biology on the field of carbohydrate bioengineering manifests itself by the appearance of numerous articles on the structure of the catalytic and noncatalytic domains of carbohydrate-modifying enzymes (esterases, hydrolases, polysaccharide-binding proteins, and transferases).

As with most symposium-based books, there is some fluctuation in the quality of the articles. However, the results reported provide the reader with the current state of knowledge in this general area. I personally would have preferred to see more contributions in the areas of post-translational glycosylation and polysaccharide biosynthesis. I believe these additions would have made the text more well-rounded and of considerably more utility. Nonetheless, I can strongly recommend the book for academic and industrial libraries interested in the general area of glycobiology. However, I suspect that desk copies of the monograph would be needed only by those who work in the specific fields of structural glycobiology and/or carbohydrate-modifying enzymes.

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