under a new title *Plant Polyphenols*, reflecting a recent "surprising renaissance" of this subject.

The remarkable progress in this field has changed the definition of "tannin," from the mixtures of undefined phenolics in plant extracts associated with tannage and dying, to the numerous polyphenolic compounds of well-defined chemical structures of diverse variety. Minimization of misunderstanding that may occur among the scientists who have the old concept of tannin is now required.

The polyphenols, as thus used in the title, are the compounds belonging to tannins. "Condensed proanthocyanidins" and "esters of gallic acid and their metabolites," used as the names of two large groups of polyphenolic compounds in this book, are those that have been widely called condensed tannins and hydrolyzable tannins. The preference for these new names will have been based on the accomplishments in the isolation and structural determination of the tremendous number of polyphenolic compounds in these two decades, and also on the contemporary views on their properties and biosyntheses.

These polyphenols are comprehensively surveyed in this book, excluding the other types of polyphenolic compounds such as flavonoids (except flavans), lignans and coumarins, and also caffeic acid derivatives, such as labiataetannins.

The plant polyphenols are important in botany, biochemistry and chemistry, in food and nutritional chemistry, and also in medicinal and pharmacological studies. This book is necessary for scientists in these fields, both for correcting some old concepts of tannin, and for obtaining the chemical basis for understanding a number of newly found biological activities of polyphenolic compounds that are abundant in nature.

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DISCOVERING WILD PLANTS: ALASKA, WESTERN CANADA, THE NORTHWEST.

By Janice J. Schofield; illustrated by Richard W. Tyler. Alaska Northwest Books, Anchorage (Alaska). $24.95 (paper). viii + 354 p.; ill.; index. ISBN: 0-88240-369-9. 1989.

TRANSPORT OF PHOTOASSIMILATES. *Monographs and Surveys in the Biosciences.*

Edited by D. A. Baker and J. A. Milburn; Series Editor: M. Wilkins. Longman Scientific & Technical, England; John Wiley & Sons, New York. $108.00. xvii + 384 p. + 1 pl.; ill.; author and subject indexes. ISBN: 0-470-21386-8 (USA only). 1989.

This multiauthor volume provides a critique of assimilate transport in higher plants, along with an extensive literature review. The book is written for the specialist. The authors conclude that mechanisms of transport processes are now better understood than a decade ago, but control of transport, from a whole plant perspective, is far from clear.

Eight chapters review recent studies on the anatomical, biochemical and biophysical features of photoassimilate transport. The first chapter describes current concepts of transport mechanisms within photosynthetic cells. Chapter Two gives current concepts of symplasmic and apoplasmic transport between leaf cells. Separate chapters deal with phloem loading and unloading. Two chapters detail phloem cellular structures and physiological aspects of translocation. The physiology of long-distance transport and source/sink regulation are summarized in the remaining two chapters.

Models of phloem transport are given only cursory treatment, and many of the controversies generated by these models are ignored. Similarly, use of steady-state short-lived isotope labeling to simultaneously measure velocity and concentration profiles is not mentioned. Methods to measure the immediate effects of current photosynthesis on translocation are identified as a need, but the short-lived isotope techniques that can provide this type of information is dismissed because of the short half-life of these isotopes, and the cost of dedicated accelerators for their production. Although there are problems and costs associated with short-lived isotopes, steady-state continuous labeling techniques may represent the only method for nondestructive, simultaneous measurement of real-time transport velocities and concentrations in intact plants.

The strength of this book lies in its many excellent summary diagrams of flow rates between different parts of the plant. The C and N partitioning diagrams associated with the origin, destination and fate of phloem solutes are the highlight of the book. Finally, over one thousand different studies are referenced in the author index.

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THE BOLETINEAE OF MEXICO AND CENTRAL AMERICA I & II. *Beihefte zur Nova Hedwigia, Volume 98.*

By R. Singer, J. Garcia, and L. D. Gomez. J. Cramer (Gebrüder Borntraeger Verlagsbuchhandlung), Berlin. $52.50 (paper). v + 70 p. + 2 pl.; ill.; index to taxa. ISBN: 3-443-51020-5. 1990.

THE HEALING FOREST: MEDICINAL AND TOXIC PLANTS OF THE NORTHWEST AMAZONIA. *Historical, Ethno- and Economic Botany Series, Volume 2.*

By Richard Evans Schultes and Robert F. Raffauf; Foreword by H. R. H. Philip; General Editor: Theodore R. Dudley. Dioscorides Press, Portland (Oregon). $59.95. 484 p.; ill.; symptom, disease, and treatment index and index to genera. ISBN: 0-931146-14-3. 1990.

This is a work that will remain valuable forever. For all practical purposes, it summarizes the essentials of nearly a half-century of ethnobotanical work carried out by Dick Schultes in northwest Amazonia. The emphasis is, as the title states, on medicinal and toxic plants. Parenthetically, any poison is a potential drug as well! Bob Raffauf, who accompanied Schultes and his students on a number of field trips, and who worked as a phytochemist on a wide range of materials with potential pharmaceutical value (I might add both in industry and academe, and throughout a long and distinguished career), is also a close personal friend of Schultes. Along with all of his long-time experience in medicinal plants with interesting chemistry (especially alkaloid-containing ones), and their long-time association on a number of professional levels, including editing together the journal *Economic Botany*, Raffauf is the perfect collaborator for writing this book. Together these gentlemen (and I mean gentlemen!) have gone through great lengths to see to it that the rich ethnobotanical heritage of this region does not go undocumented.

This book will serve for many years as a research guide to all those who choose to follow in their footsteps. A long preface, albeit without references, provides an overview of the geography and floristics of the region in question, and this should stir some interest in the uninitiated. Plants are covered in the main body of the work according to family. The scientific family name is provided, along with the authority, followed by the common family name. Genera and species are also listed alphabetically, again with authorities. Many beautiful botanical illustrations and field photographs of species are provided. Unfortunately, literature citations do not include titles for journal articles. Also, there are some rather unusual "conventions" used in citation, e.g., citation of papers are by senior author and date only, and coauthors are not mentioned. This can be annoying when trying to trace a citation quickly. In a few cases, citations in the text do not appear in the references, e.g., on page 126, Bruening, 1978 is missing. I believe this discredits the publisher, who should have also caught in proofreading the title of the work by Schultes and Hofmann (*Plants of the Gods*), which has been left out of the General Bibliography (p. 476), although the publisher, place and date of publication are given!

Minor points these may be, no one can really review a book like this and I will not pretend to. But there are a few factual errors that I will mention. *Manihot esculenta* (p. 181) contains more than one toxic glucoside (it contains linamarin and lotaustralin), and *Ocimum basilicum* is not a sacred plant in India. It is *O. sanctum* (so-called tulasi) that is regarded as the incarnation of Lakshmi, the wife of Lord Vishnu, and is worshipped by Hindu women. Under *Chondrodendron*, a curare-yielding plant, we read the curious statement that the "roots of certain species are the source of the medicinal *Radix Pereirae Bravae*." Very few pharmacists and pharmacognosists would know what it was, and the sad fact is that curare alkaloids are largely being displaced by succinylcholine-type preparations. I say sad because tubocurarine and some other types of action can be reversed with physostigmine, and hence response on the operating table can be carefully controlled or titrated, whereas it is easy to "overshoot" with succinylcholine.

There is a symptom, disease, and treatment index that can be helpful in directing a reader to a given page if a particular use is sought for a plant. I could carp over the arrangement of a few of the entries. The inclusion of aphrodisiacs under "reproductive disorders" is arguable and, to me, humorous. There are, also, a few of the seemingly inevitable errors in the page references.

Overall, this is a magnificent book. It is a gold mine that can be used for many years. We should all be glad that this book has appeared, for if it had not, the loss that it would have reflected would be no less than that, so much to be deplored, of the destruction of the very rain forest that harbors so much of the information in this book.

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PLANTS OF DHOFAR: TRADITIONAL, ECONOMIC AND MEDICINAL USES.

By Anthony G. Miller and Miranda Morris; illustrated by Susanna Stuart-Smith. Office of the Adviser for Conservation of the Environment, Diwan of Royal Court, Oman. £35. xxvii + 361 p.; ill.; plant and local names indexes. ISBN: 0-7157-0808-2. 1988.

This elegant volume is the result of two flora and fauna surveys sponsored by the Government of Oman, the first in 1975 in the northern part of the country, and the second in 1977 in the south. Collections made by Alan Radcliffe Smith, of the Royal Botanic Gardens at Kew, England, made possible the first published list of the plants of Dhofar and, later, the description of several new species. The plants chosen for inclusion in the book are primarily those of importance to the livelihood of past generations, including forage plants and some toxic species. The text is in English and the two-column format has made it possible to em-