Potter's New Cyclopaedia of Botanical Drugs and Preparations: revised by ELIZABETH M. WILLIAMSON and F. J. EVANS, The C. W. Daniel Co., Saffron Walden, Essex. 362 pp. £14.25 paperback.

Interest in medicinal plants has never been greater than at present in this country and many people are turning to herbal extracts to cure their complaints. Witness, for example, the recent use of feverfew (*Tanacetum parthenium*) for treating migraine; here the active principles are thought to be sesquiterpene lactones, although further work is needed to be sure. As with many medicinal plants, there are problems of administering the drug. Feverfew leaves have a bitter and nauseous taste and if eaten have to be taken with other foods to disguise this taste. There are also side effects, the least distressing of feverfew being a mild tranquillising effect. Toxicity is often present in drug plants and it is therefore vital if one is going to take a herbal preparation, to be able to look up to see what is known of its effects and its chemical constituents. This Cyclopaedia does just that—it provides a handy guide to the wealth of information that we have on all the common botanical drugs.

Plants are listed alphabetically by common name–from abscess root and acacia bark to yohimbe bark and zedoary–but synonyms are also listed and there are excellent indexes to both these synonyms and the Latin names. For each entry, there is a description of the plant, an indication of the part used, a list of chemical constituents where these have been studied and then a description of medicinal use and the preparations that are available. To the scientist, the most valuable feature of this book is the extensive reference list, 1381 in all. It is thus possible to look up and see in detail what has been done before. I know of no other popular tome that provides such a wealth of accurate information and informed comment on our medicinal plants and I can heartily recommend this book to a phytochemical audience.

School of Plant Science, University of Reading JEFFREY B. HARBORNE

Environmental Physiology of Plants, 2nd Edition: by A. H. Fitter and R. K. M. Hay, Academic Press, London, 1987. 423 pp, hardback £35, paperback available.

Unfortunately, I somehow missed seeing this excellent textbook when it first came out so that I cannot compare this second edition with its predecessor. However, I can commend it to anyone responsible for undergraduate botany courses since it clearly provides a sound basis for a second or third year course in physiological ecology. It is also a good introduction for anyone wishing to update themselves on recent developments in this rapidly expanding interdisciplinary field. Who is not concerned today about the damage caused by atmospheric pollution on plant life or who is not interested in the positive steps being taken to breed crop plants resistant to saline or drought stress? This book provides the necessary background for understanding the processes involved in such fashionable research topics.

There is an introductory scene-setting opening chapter, defining such concepts as plant growth, environmental stresses, population responses and plant adaptations. The book is then divided into two halves: the acquisition of resources—energy, carbon, mineral nutrients and water; and the plant responses to environmental stress—temperature, ionic toxicity, gaseous toxicity, interactions between organisms and the ecological consequences. Each chapter is illustrated with many experimental examples from the recent literature and there is an extensive 48 page bibliography at the end.

The whole book has been well thought out in advance and is very readable. In some places, it is almost too concise and one would have liked the authors to have expanded on some topics. Nevertheless this book provides probably the most accessible text for what is a highly complex and continually developing research field and it can be warmly recommended.

School of Plant Sciences, University of Reading JEFFREY B. HARBORNE

Progress in Botany, Volume 49: edited by H. D. BENCKE, K. ESSER, K. KUBITZKI, M. RUNGE and H. ZIEGLER, Springer, Berlin, 1987. 454 pp., DM 258.

Once again, this useful review series surveying the botanical scene of the last two to three years has appeared. For readers of '*Phytochemistry*', the chapters with the greatest relevance will be those on growth hormones (covering this year the gibberellins, the cytokinins and the brassinosteroids), on the metabolism of inorganic nitrogen compounds, on the reaction centres of photosynthesis, on mineral nutrition and on steroid biosynthesis. There is also a wide ranging article on the evolution and classification of seed plants by H. H. Poppendieck, which reviews *inter alia* recent developments in both chemosystematics and chemical ecology. Poppendieck also provides a helpful evaluation of the application of cladistic studies to plant classification and he lists some ten recent papers where evolutionary 'noise' has been interpreted in unorthodox ways.

The abbreviated style of many of these reviews does not make for easy reading but there is the benefit of compre-

hensiveness—very few important papers escape the net of the reviewers. There are also helpful tables and diagrams in many of the contributions. Additionally, small type is used for the less important sections of the review so that it is possible to skim through the chapters and avoid the detail if so desired. All but two of the twenty-three chapters are in the English language. In summary then this review series continues to provide an excellent service to plant scientists, alerting them to recent developments in many different fields.

School of Plant Sciences, University of Reading JEFFREY B. HARBORNE

Phytochemicals in Plant Cell Cultures: edited by F. CONSTABEL and I. K. VASIL, Volume 5 in the Cell Culture and Somatic Cell Genetics of Plants Series, Academic Press, San Diego, 1988. 618 pp., $110.

This is the second of two volumes devoted to the production of secondary metabolites in plant cell cultures. The first volume covering physiological and technical aspects was reviewed earlier in this Journal (Vol. **27**, p. 4008). This volume is the straightforward review of the chemical substances that have been characterized in either callus or suspension cultures, class by class. Where information is available, biosynthetic and metabolic aspects are also discussed. The compounds are grouped into five headings: phenolics, alkaloids, terpenoids, miscellaneous substances and biologically active compounds. Almost all chapters are written by acknowledged experts and the information presented is generally accurate and up-to-date.

It is unfortunate that accumulation in quantity is unusual and the practical application of tissue culture is still limited to a very few substances, such as the naphthoquinone pigment shikonin. Nevertheless, the study of phytochemicals in tissue culture has been extremely worthwhile, since it has permitted the isolation and characterisation of many of the enzymes of biosynthesis. This book is a true reflection of the current state of the art in coaxing plant cells to synthesise in the test tube the secondary substances that they so readily produce in the whole plant. Anyone wishing to find out how far phytochemists have succeeded in producing a particular compound or class of compound in cell culture will find the answer here.

School of Plant Sciences, University of Reading JEFFREY B. HARBORNE

Handbook of Plants with Pest-Control Properties: by MICHAEL GRAINGE and SALEEM AHMED. John Wiley & Sons, New York, 1988. xvii + 470pp. $44.95.

Recent years have seen a resurgence of interest in higher plants as a source of 'leads' to the development of new drugs and pesticides. The success for example, of the semi-synthetic pyrethrins has demonstrated the commercial potential in studying nature's chemical arsenal, yet only about 10 000 secondary metabolites have been characterised out of an estimated total of 400 000 or more. Reports of insecticidal and other pesticidal effects have tended to be overshadowed in ethnobotanical literature by studies of pharmacological activity. Those interested in agrochemical possibilities have had difficulty accessing reliable data. This volume, a timely and welcome catalogue of 3 400 plants reported to have pest-control properties or to have potential as such, has been compiled over six years from literature searches and the response to surveys from regional, national and international agencies worldwide.

The book is divided into three sections. In section one, plant species are listed in alphabetical order followed by information in a data base format with codes explained in a frontispiece. The data include plant characteristics (life cycle, type, classification, climate and soils), description of the active material (stability in use and storage, active principles when known), methods of preparation/extraction/application, plant parts used, type of pest-control activity observed, toxicity, organisms controlled, and references. The most widely quoted plant species are also listed as the 'cream of the crop' at the start of the section for quick reference. Section two is an alphabetical list of pests, divided into groups according to type, (bacteria, fungi, insects etc.) followed by the plant species which control them. Section three has a similar format to section one, but is an alphabetical list of poisonous plants which have been used to control non-insect animal parasites and diseases. Both sections one and three are fully referenced, 1398 sources being listed, some dating back more than seventy years.

A possible criticism of this book is that species names are not followed by their botanical authority. Despite the warning in the frontispiece that 'the scientific names of plants and pests may have been changed to conform to the current approved usage' some confusion may still arise. Nevertheless, this volume provides a unique and convenient reference to pesticidal plants and will be a valuable asset to many phytochemists.

Jodrell Laboratory Royal Botanic Gardens, Kew L. E. FELLOWS