

scavenger. The decreased alkaline pyrophosphatase activity associated with senescence appears to support the view that highest alkaline pyrophosphatase activity is associated with cells active in biosynthesis (RAUSER 1971). The exaggerated decrease in alkaline pyrophosphatase activity associated with senescence in phosphate-deficient medium is consistent with the view of alkaline pyrophosphatase as an enzyme most active under conditions of high metabolic activity.

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BOOK REVIEW

VOGELLEHNER, D.: BOTANISCHE TERMINOLOGIE UND NOMENKLATUR. Eine Einführung. 2., überarbeitete und erweiterte Auflage. (Uni-Taschenbücher 1266). — Gustav Fischer Verlag, Stuttgart 1983. 140 S. Kart. DM 16,80.

Die erste Auflage dieses Taschenbuches ist in *Biol. Plant.* **15** : 367, 1973 besprochen worden; ich möchte mich deshalb hier nur auf die Erweiterungen und Umarbeitungen konzentrieren. Die nach 11 Jahren erscheinende Neuauflage ist um beinahe 60 Seiten im Umfang gewachsen und um 8,— DM im Preis gestiegen. Es sind verschiedene Kapitel hinzugefügt (z. B. zur c-, k-, z-Schreibung, Behandlung der Namen der Gattungen und Arten — Heraushebung der wichtigsten Regeln) und andere bedeutend erweitert und umgearbeitet worden (z. B. viele neue Begriffe besonders aus Physiologie und Genetik in der alphabetischen Liste der Fachausdrücke, die nun *cca.* 1500 Begriffe beinhaltet; erweitertes kleines griechisch/lateinisch-deutsches Lexikon mit nun *cca.* 750 Grundwörtern und Wortelementen; viele Stellen im Text der Grundzüge der botanischen Nomenklatur). Diese Ergänzungen und Umarbeitungen tragen in positiver Weise dazu bei, dass dieses Taschenbuch weiterhin eine sehr nützliche Lernhilfe zur Ableitung und Deutung botanischer Fachbegriffe sein und als solche vielen Lesern gute Dienste leisten wird.

INGRID TICHÁ (Praha)

FEST, C., SCHMIDT, K. J.: *THE CHEMISTRY OF ORGANOPHOSPHORUS PESTICIDES*. — Springer Verlag, Berlin—Heidelberg—New York 1982. 360 pp. Cloth DM 164,—; approx. US \$ 68.40.

During the Second World War scientists were engaged in the development of highly toxic nerve gases. Several organophosphorus compounds structurally related to the nerve gases tabun and sarin were found to be effective pesticides. This book provides a synthesis of information on the biochemistry and metabolism of organophosphorus pesticides which due to a wide spectrum of physicochemical and biological properties enables appropriate substances to possess a wide range of use in agriculture. The introductory chapters deal with the historical development, with the electronic structure, bond properties, reactivity (hydrolysis, alcoholysis, alkylating and phosphorylating properties) and with the nomenclature (where English is used, the nomenclature proposed by IUPAC is now largely established). The following chapter, forming the core of the book, presents data on organophosphorus compounds used as insecticides, fungicides, herbicides and chemosterilants. Structural formulae, data on synthesis, LD₅₀, on usage *etc.* are given for the described compounds. All living organisms possess defence mechanisms intended to protect them from the deleterious effects of foreign compounds, including pesticides. The chapter on biochemistry focuses on the pathways leading to the degradation of pesticides (oxidation, reduction, isomerization, hydrolysis, dealkylation, dearylation and conjugation). Data on the toxic and neurotoxic effects of organophosphorus pesticides, first aid, on the relation of structure and activity and on development of resistance are also included. In the appendix the readers can find a list of trade and scientific names.

This book appears in second revised edition (the first edition appeared 1973) with updated chapters on chemistry and metabolism.

J. VELEMÍNSKÝ (*Praha*)

IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO HUMANS. CHEMICALS, INDUSTRIAL PROCESSES AND INDUSTRIES ASSOCIATED WITH CANCER IN HUMANS. IARC Monographs Supplement 4. — International Agency for Research on Cancer, Lyon 1982. 292 pp. Sw. fr. 60.—; US \$ 30.—.

In order to deal more effectively with genotoxic chemicals, a better understanding of their mode of action and the development of new methods for the evaluation of their risks to humans is essential. Under the guidance of an editorial board of experts, the IARC Monographs assess the genotoxic effects of environmental chemicals, the detection methods and analyses of damage caused by these compounds. The publication being reviewed is a report of the IARC *ad hoc* Working Group which met in Lyon in 1982. The aim of the meeting was to re-evaluate the data on the carcinogenicity reported in the first 29 volumes of the IARC Monographs. All chemicals, groups of chemicals, industrial processes and occupational exposures were re-evaluated on the basis of new data on carcinogenesis and on short-term mutagenic studies. The data on each chemical contain: A) Evidence for carcinogenicity to humans; B) Evidence for carcinogenicity to animals; C) Evidence for activity in short-term tests. The short-term tests include studies on DNA damage, mutations and chromosome anomalies in prokaryotes, fungi, green plants, insects, mammalian cells *in vitro* and mammals *in vivo*. The degrees of evidence for genotoxic effects are categorized as sufficient, limited and inadequate.

The Working Group presents a list of 7 industrial processes and occupational exposures and 23 chemicals and groups of chemicals that are causally associated with cancer in humans and a list of 61 chemicals carcinogenicity of which is considered to be sufficiently evidenced in experimental animals.

KATEŘINA PÁNKOVÁ (*Praha*)

PARTHIER, B., BOULTER, D. (ed.): *NUCLEIC ACIDS AND PROTEINS IN PLANTS II. STRUCTURE, BIOCHEMISTRY AND PHYSIOLOGY OF NUCLEIC ACIDS*. — PIRSON, A., ZIMMERMANN, M. H. (ed.): *ENCYCLOPEDIA OF PLANT PHYSIOLOGY*, New Series, Volume 14B. — Springer-Verlag, Berlin—Heidelberg—New York 1982. 774 pp., 173 figs. Cloth DM 268,—; approx. US \$ 107.20.

In this second part of the 14th volume of the well-known new Encyclopedia of Plant Physiology, 21 leading investigators review many aspects of current research of nucleic acids in plants in 18 self-contained chapters. Our knowledge of nuclear DNA is summarized in 4 initial chapters entitled "Nuclear chromatin", "Chromosomal DNA sequences and their organization", "DNA replication and the cell cycle", and "DNA reduplication and differential replication". Particular attention is paid to structural DNA organization, also in relation to regulation of DNA function,

and to methodological, biochemical and physiological aspects of DNA replication. The complex problem of mechanisms and control of the process of transcription is examined mainly from enzymological point of view. Methods of isolation and separation, general properties, and regulation of the activity of both nuclear and chloroplast RNA polymerases are reviewed in detail. Further, more general topics of plant RNA research are concerned with nucleotide sequence of different species of both cytosolic and organelle RNA molecules, with the processes and significance of post-transcriptional RNA modifications, and with enzymology of RNA breakdown. The critical evaluation of reports on RNA-splitting enzymes directs attention to a number of possible artifacts which can occur during enzyme purification and characterization, and to difficulties in interpreting the results on the control and implication of these enzymes and of RNA breakdown in various physiological processes. Metabolism of pyrimidines and purines is discussed especially from the aspect of their synthesis, interconversions and degradation in functional precursor relationship to nucleic acid synthesis. The main specific features of plastid genetic information are described in 4 special chapters entitled "Organization and expression of plastid genomes", "The biosynthesis of chloroplast proteins", "Use of mutants in the study of chloroplast biogenesis", and "Interrelationship between chloroplasts and the nucleo-cytosol compartment in *Acetabularia*". More than one fourth of the book is devoted to plant pathogens carrying infectious genetic material. Special emphasis is laid on genome structure of cauliflower mosaic virus, the organization and expression of the genome of RNA viruses, on biology, structure, functions and possible origin of viroids, and on the biology and expression of Ti-plasmids of *Agrobacterium tumefaciens*. "Use (and misuse) of inhibitors in gene expression" is the title of the last chapter drawing attention to possible misleading data and misinterpretation of results of experiments utilizing transcription and translation inhibitors.

The book is written authoritatively and provides instructive and stimulating reviews of the many fields of the topic it is concerned with. All the chapters are well referenced and a detailed subject index enhances the value of the book.

J. TUPÝ (Praha)

SETLOW, J. K., HOLLAENDER, A. (ed.): GENETIC ENGINEERING. PRINCIPLES AND METHODS. Vol. 3. Plenum Press, New York—London 1981. 346 pp. U.S. \$ 39.50.

The 3rd volume of Genetic Engineering series presents the following 12 reviews: Review 1 "Constructed mutants using synthetic oligodeoxyribonucleotides as site-specific mutagens" (M. Smith and S. Gillam) describes methods which use a synthetic oligodeoxyribonucleotide different from wild type in the defined position as a specific mutagen and involves *in vitro* integration of the oligodeoxyribonucleotide into genomic DNA. Using the *in vitro* selection techniques that have been developed it is possible to mutate eukaryote DNA that is not expressed in the host microorganism applied to cloning.

Review 2 "Evolution of the insertion element IS 1" (E. Ohtsubo *et al.*) deals with the genetic rearrangements mediated by IS elements focusing on the insertion of elements IS 1. The authors discuss research of the distribution of IS 1 sequence in various gram negative bacteria, the evolution of the element and the present knowledge of the creation of transposable elements responsible for multiple antibiotic resistance and enterotoxin production in bacteria.

The initial section of review 3 "Applications of molecular cloning to *Saccharomyces*" (M. V. Olson) examines the methods that have been used to identify specific DNA sequences within populations of recombinant clones and the greatest attention is given to unusual techniques that exploit special advantages of the yeast system. The second section surveys the use of cloned sequences to study specific problems of gene organization, gene expression and genome structure. The descriptive material on methods and results is followed by tabulation of the identified yeast DNA sequences that have now been cloned (intervening sequences, MAT locus, chromosomally derived autonomous replication sequences, middle repetitive DNA).

Review 4 "Retrovirus cloning" (W. L. McClements and G. F. Vande Woude): The authors reviewing the structure of retrovirus genome describe the advantages and disadvantages of strategies that can be used to clone retroviruses and they discuss the potential using of retroviruses as cloning vehicles.

Review 5 "Repeated DNA sequences in *Drosophila*" (M. W. Young) surveys the properties of repeated sequences in *Drosophila*, which are subdivided into highly repetitive with an average reiteration frequency of about 24 000 and moderately repetitive ones with a reiteration frequency usually falling within a range of 10–100 copies per haploid genome (nomadic gene families *Copia* and 412).

In review 6 "The case of variant surface glycoprotein (VSG) genes of African Trypanosomes"

(K. B. Marcu and R. O. Williams) the latest results of the studies designed to assess the genetic basis for VSG gene expression are summarized.

Review 7 "Mouse immunoglobulin genes" (P. Early and L. Hood) demonstrates the rapid progress made in characterizing the genes encoding immunoglobulin molecules during the past few years. Attention is devoted to the V genes rearrangement, generation of V region diversity, allelic exclusion, structure and evolution of the immunoglobulin gene families, heavy chain class switching *etc.*

Review 8 called "The use of cloned DNA fragments to study human diseases" (S. H. Orkin) seems to be a bit of futurological study. Hormone, immunoglobulin and collagen disorders are judged as fertile areas for consideration of molecular basis of selected conditions.

The two next reviews show the way how to introduce the new techniques of molecular biology into the genetics of higher plants:

Review 9 "Physical mapping of plant chromosomes by *in situ* hybridization" (J. Hutchinson *et al.*) documents that *in situ* hybridization of labeled cloned DNAs is a powerful tool for mapping repetitive sequences on chromosomes.

Review 10 "Mutants and variants of the alcohol dehydrogenase (Adh)-1 gene in maize" (M. Freeling and J. A. Birchler) assembles a genetic instruction manual for maize Adh. The authors demonstrate on examples that classical genetic phenomenology plays an absolutely necessary role in understanding how nucleotide sequences ultimately control physiology and development.

Review 11 "Developmentally regulated multigene families in *Dictyostelium*" (R. A. Firtel *et al.*) deals with characteristics of the *Dictyostelium* genome, transcription of this genome and the organization and regulation of expression of repeat gene families.

Review 12 "Computer assisted methods for nucleic acid sequencing" (T. R. Gingeras and R. J. Roberts) describes in which ways computers have been useful in the determination and analysis of nucleotide sequences.

P. TICHÝ (Praha)

SETLOW, J. K., HOLLAENDER, A. (ed.): GENETIC ENGINEERING. PRINCIPLES AND METHODS. VOL. 4. — Plenum Press, New York — London 1982. 287 pp. U.S. \$ 39.50.

The 12 reviews collected in the 4th volume of Genetic Engineering series can be divided into five basic topics: 1) DNA sequencing and syntheses of deoxyoligonucleotides (J. Messing, M. H. Caruthers *et al.*), 2) transcription of eukaryotic genes in soluble cell-free systems (J. L. Manley, and N. Heintz and R. G. Roeder), 3) cell-free translation systems (J. S. Miller *et al.*), 4) sequence determination of metabolically labeled radioactive protein and peptides (C. W. Anderson), and 5) the most frequently treated topics of molecular cloning: molecular cloning of nitrogen fixation genes (F. M. Ausubel *et al.*), cloning of human interferon genes (R. W. Lawn), cloning in *Streptomyces*-strategies and systems (D. A. Hopwood and K. F. Chater), cloning by complementation in yeast (J. B. Hicks *et al.*), and construction and screening of recombinant DNA libraries with the charon vector phages (B. A. Zehnbauser and F. R. Blattner). Outside these five topics lies the review dealing with the methodology of the attachment of nucleic acids to nitrocellulose and diazonium-substituted supports (B. Seed).

The reviews have been written with a high expertness and their reading requires that the reader should be educated in the surveyed field.

P. TICHÝ (Praha)

SHERIDAN, W. F. (ed.): MAIZE FOR BIOLOGICAL RESEARCH. — Plant Molecular Biology Association, Charlottesville, USA 1982. 434 pp. Softbound US \$ 20. — individuals / \$ 35. — institutions.

Maize is the third most important crop plant in the world and because of its favorable biological features it is also an excellent experimental organism for biological research. Consequently, it became the most extensively characterized flowering plant from genetic and cytogenetic points of view, and also well understood from the other aspects of plant biological research. The present book is a collection of 63 articles providing information on the current state of knowledge of many aspects of maize with special emphasis on genetics and cytogenetics, and on possibilities and advantages of this higher plant material for molecular biology studies. The contributions are arranged according to the following topics: The Plant, its Cultivation and Genetic Categories (36 pp., basic description and vocabulary of some morphological and anatomical plant parts, instructions how to grow and handle maize for genetic purposes, and description of different genetic categories of maize); Genetics and Cytogenetics (69 pp., summary of genetic linkage maps, markers and stocks, and of chromosomal locations of enzyme *loci*, discussion of genetic

procedures of the corresponding genetic mapping research); Cytological Techniques (15 pp., detailed description of staining both meiotic and somatic chromosomes, and of RNA hybridization to meiotic chromosomes *in situ* together with autoradiographic detection of hybrids); Genes and Known Protein Products (37 pp., reports on identified gene-enzyme relationships in anthocyanin biosynthesis, on protein products of starch mutants, on developmental genetic control of catalase and on mapping of zein genes); Nucleic Acids, Cloning and Controlling Elements (60 pp., protocols for DNA isolation, review on RNA polymerases and their role in transcription, and discussions on structure and cloning of zein genes, on construction of DNA libraries, and on transposable elements controlling gene structure and expression); Cytoplasmic Male Sterility, Mitochondria, Chloroplasts, and Pollen (73 pp., male sterility discussions from the aspects of sterile cytoplasm types and sources, molecular basis and gene interactions, reversions to fertility, and studies of revertants by means of tissue culture techniques and DNA structure analysis; speculations on mitochondria and chloroplasts implication in heterosis, descriptions of restriction nuclease cleavage map of the chloroplast genome, and of pollen collection, composition and enzymology); Development, Pigments and Photosynthesis (31 pp., articles on genetic analysis of factors involved in some morphogenetic pathways, on genetic approaches to analyzing meristem organization, and on chlorophyll, carotenoid and photosynthetic mutants); Breeding, Wild Relatives, and Germplasm (39 pp., overview of history and objectives of maize breeding, discussions on systematics of *Zea*, on utilization of teosinte and *Tripsacum* germplasm to increase maize genetic variability, and on opaque-2 form to improve protein nutritional quality, and on genetic complexity of disease resistance); Tissue and Cell Culture (37 pp., reviews of techniques and problems of *in vitro* plant regeneration from tissues, cells and protoplasts of various somatic origin and from anthers, of endosperm culture and problems of *in vitro* genetic selection). This series of articles containing extensive references, instructive tables and illustrations represents above all an excellent up to date summary of the current knowledge of many aspects of maize. Being written by active workers in the particular fields, some hitherto unpublished results of recent research are presented together with valuable suggestions, stimulating ideas and practical instructions for further scientific work. The book is to be highly recommended especially to workers engaged in maize research and to those who are seeking for a suitable experimental higher plant material for molecular biology research. The orders of the book are to be addressed to Plant Molecular Biology Association, Maize Book Dept., P.O. Box 5126, Charlottesville, VA 22905, USA. As the publisher requires pre-payment, a check payable to Plant Molecular Biology Association is requested to be attached to the order.

J. TUPÝ (Praha)

HALL, J. L., MOORE, A. L. (ed.): ISOLATION OF MEMBRANES AND ORGANELLES FROM PLANT CELLS. — Academic Press, London—New York—Paris—San Diego—San Francisco—São Paulo—Sydney—Tokyo—Toronto 1983. 317 pp. £ 27.00, US \$ 45.00.

World scientific literature will probably never suffer from a surplus of methodological books. They usually belong to bestsellers; this will certainly be the case of a new volume in the "Biological Techniques Series". It brings in eleven chapters an overview of methods used in producing purified organelle and membrane fractions from plant cells. The two British editors invited further 7 British, 4 U.S.A., and 1 Swedish authors to the preparation of a very useful manual, which brings not only reviews of the pertinent methodological papers, but mostly also detailed cookery book recipes, markers and criteria of preparations from different plant species.

The introductory chapter on general principles of cell fractionation brings the history of these methods and principles of various types of centrifugation (with tabellar characteristics of swinging bucket, batch-type zonal and vertical or small-angle rotors, and materials for gradients preparation) showing also simple gradient generators. Next chapters describe the isolation and purification of cell walls (in aqueous and non-aqueous media), plasma membranes (with a practical table on the main procedures), plant vacuoles and tonoplasts (isolations from tissue or protoplasts, stability of preparations), endoplasmic reticulum and ribosomes, and the Golgi apparatus. The following four chapters describe methods for the most often isolated organelles: mitochondria and sub-mitochondrial particles, chloroplasts and protoplasts of high CO₂ fixation ability (including also tests for intactness, assays of CO₂ assimilation, procedures for isolation of thylakoids and chloroplast envelopes), microbodies, and nuclei (with an interesting table of isolation effects on DNA yields). The last chapter deals with separation of membrane particles (protoplasts, plasma membranes, chloroplasts, mitochondria, inside-out thylakoid vesicles or submitochondrial particles) according to their surface properties by means of aqueous polymer two-phase systems (includes counter-current distributions, batch two-phase systems, etc.).

The comprehensive volume is supplemented with a list of abbreviations and a combined plant and subject index. Lists of well-chosen references are at each chapter, but the Authors Index is missing.

Z. ŠESTÁK (*Praha*)

INGRAM, D. S., WILLIAMS, P. H. (ed.): *ADVANCES IN PLANT PATHOLOGY*, Vol. 1. — Academic Press. London—New York 1982. 220 pp.

Phytopathology evidently belongs to those biological sciences that have developed intensively in recent years. Even to specialists-phytopathologists it seems nearly impossible to follow the progress in this scientific field within its whole range. Consequently, one must highly appreciate the activity of Academic Press publishing *Advances in Plant Pathology* since 1982. As mentioned in the preface to Volume 1, the main aim of the articles in "Advances" is to present new approaches provoking novel research trends rather than literature reviews.

Volume 1 was prepared by eight authors. The book comprises five articles dealing with current problems of phytopathology: 1) Hypovirulence (J. E. Elliston); 2) Specific recognition in gene-for-gene host-parasite systems (N. T. Keen); 3) The chemistry and biology of pathotoxins exhibiting host-selectivity (J. M. Daly, H. W. Knoche); 4) Crown gall: A multipotential disease (D. J. Merlo); 5) Enzymes involved in the replications of plant viral RNAs (T. C. Hall, W. A. Miller, J. J. Bujarski).

All the problems are treated in great detail. The articles provide both excellent reviews of recent literature and a rich source of new theoretical approaches. The speculative nature of some of them (*e.g.* the article by N. T. Keen) makes the contents of the book highly attractive, especially to those seeking for novel provoking thoughts.

Volume 1 of the "Advances" can be regarded as a success as regards both the contents and formal arrangement of the book. One must appreciate numerous schemes, figures, tables and an index of scientific terms enabling a rapid orientation in the text. The book can be recommended to all interested in phytopathology, especially to those searching new theoretical concepts. All specialists concerned look forward to publishing the second Volume of the "Advances".

A. LEBEDA (*Smržice*)

DATENSAMMLUNG ZUR TOXIKOLOGIE DER HERBIZIDE. BAND 2. Erste bis vierte Lieferung. — Verlag Chemie. Weinheim, Deerfield Beach, Florida, Basel, 1983. 136 S. DM 160,—.

In den vergangenen Jahren sind eine grössere Anzahl neuer herbizider Präparate zugelassen worden. Es muss aber beachtet werden, dass bei schnellen Entwicklung der chemischen Herbizide die Anwendungspraxis gegenüber den Kenntnissen der Grundlagenforschung einen Vorlauf hat. Die Arbeitsgruppe Toxikologie der Kommission für Pflanzenschutz-, Pflanzenbehandlungs- und Vorratsschutzmittel der Deutschen Forschungsgemeinschaft hat sich die Aufgabe gestellt, die aus der Literatur bekannten und von den jeweiligen Herstellern erhältlichen Daten zur Toxikologie von Herbiziden zu sammeln. Die früheren Lieferungen der Daten wurden 1974, 1976 und 1981 publiziert und bilden zusammen Band 1. Band 2 enthält vorläufig die erste bis vierte Lieferung 1983. Als Einleitung für die Lieferung 1983 hat die Arbeitsgruppe für Toxikologie die „Verfahrensgrundsätze zur Ermittlung von Sicherheitsfaktoren für die gesundheitliche Beurteilung von Pflanzenbehandlungsmitteln“ erarbeitet. Zur Charakterisierung der einzelnen Herbizide werden die wichtigsten chemisch-physikalischen Daten, Anwendungsbereich, allgemeiner Wirkungscharakter, genotoxische Wirkungen, Schicksal in Pflanze, Boden und Wasser angegeben. Der Möglichkeit der Ergänzung dieser Datensammlung wurde dadurch Rechnung getragen, dass zur Veröffentlichung eine ergänzungsfähige Ringbuchaussgabe gewählt wurde.

Interessenten: Biochemiker, Landwirte, Umweltschutzbeauftragte.

T. GICHNER (*Praha*)

WEGLER, R. (ed.): *CHEMIE DER PFLANZENSCHUTZ- UND SCHÄDLINGSBEKÄMPFUNGSMITTEL*. BAND 8. Spezielle Chemie der Herbizide, Anwendung und Wirkungsweise. — Springer-Verlag, Berlin—Heidelberg—New York 1982. 455 S. Gebunden DM 248,— ; approx. US \$ 115.50.

Die chemische Vernichtung von Unkräutern erfordert eine hohe selektive Wirkung der angebrachten Herbizide. Die Auswahl der geeigneten Mittel und ihre richtige Anwendung setzen fundierte Fachkenntnisse voraus. Das vorliegende Buch bringt drei Übersichten über die Herbizid-Fortschritte. Die erste "Phenoxy-phenoxypropionic Acid Derivatives and Related Com-

pounds“ von H. J. Nestler befasst sich mit der Struktur, Synthese und Wirkung von PPP Herbiziden, die besonders gegen Ungräser verwendet werden. Die zweite Übersicht "Wild Oat Herbicides" von E. Hadock und R. G. Turner bespricht die Verbindungen, die man gegen *Avena fatua*, *A. ludoviciana*, *A. sterilis*, *A. barbata* usw. benützt. Die dritte Übersicht "Neue Herbizide" von R. Wegler und L. Eue befasst sich mit den Herbizid-Fortschritten von 1976 bis 1980. Wie der Herausgeber im Vorwort schreibt, erschweren die stark angestiegenen Forschungs- und Entwicklungskosten für ein neues Pflanzenschutzmittel (etwa 100 Mill. DM) den Fortschritt ausserordentlich. Bei den einzelnen neuen Herbiziden sind die chemischen Namen mit Strukturformeln angegeben und es werden die chemischen und toxikologischen Eigenschaften beschrieben. Die infrage kommenden Patente werden direkt im Anschluss an die Verbindungen genannt. Der grösste Teil des Buches (328 Seiten) enthält die "Zweite Patentergänzung — September 1976 bis November 1980", wo Herbizid-Patente aus den ganzen Welt angeführt werden. Besonders japanische Patente sind mit Sorgfalt erfasst wegen der wachsenden Bedeutung Japans als Erfinder und Hersteller von Herbiziden. Zur Charakterisierung der Herbizide sind die Strukturformeln und Hersteller angegeben. Die weiteren Daten findet man in Band 5.

T. GICHNER (Praha)

KREB, K. H.: ÖKOLOGIE UND MENSCHLICHE UMWELT. Geschichte-Bedeutung-Zukunftsaspekte. Mit einem Beitrag von J. MÜLLER. — UNI-Taschenbücher, Gustav Fischer Verlag, Stuttgart—New York 1979. 204 pp. DM 19.80.

This treatise on very modern problems concerning the relationship between man and his environment is based on three main chapters. The first is a review of historical development of this relationship and of the attitudes of man towards nature (written mainly by J. Müller). The second chapter summarizes the relevant and decisive scientific facts pertinent to the theoretical ecology such as mass and energy flows in the nature, irreversible thermodynamics of life, system analysis and cybernetics of ecosystems. The third chapter deals with more or less "practical" ecological problems of mankind: population growth; semiartificial and artificial ecosystems; civilization and technology; energy dissipation; natural resources and environment; sociological, political and philosophical consequences of the treatment of environmental problems.

The book is full of stimulating ideas. It deserves a very careful reading, not because of not being clearly written but because it deserves to be thought over and over again. The ideas in this book are to be taken as a serious and successful attempt to look over the general problems of human environment from a point of view that has to be taken into account in the first place: from the ecological (which also means: biological) viewpoint.

B. SLAVÍK (Praha)

SCHAUER, T., CASPARI, C.: FARBIGE PFLANZENWELT. BLV Bestimmungsbücher. — BLV Verlagsgesellschaft mBH., München 1983. 96 colour tables, 223 pp. DM 19.80; Ös. 158.—,

It was a very good idea to compile and publish a small and simple determination manual of common plants of Central Europe, based on two main characters: colour of the flowers and type of the biotope (like: field, dry grassland, fresh meadows and pastures, water and swamps, forests and woodland) where the plant may be found in the natural habitat. The book is a set of really very good colour pictures (by H. Geispel) of almost 600 flowering plant species with concise descriptions. A review of ecological features of the five types of biotopes used and a term vocabulary are added.

A very useful and at the same time a very beautiful small book for everybody.

B. SLAVÍK (Praha)

UPWARD, M.: AN ILLUSTRATED GUIDE TO ALPINES. — Salamander Books Ltd., London 1983. 160 pp. £ 3.95.

This is a splendid guide to the kingdom of alpine and rock plants. Of many hundreds of genera about 156 of the most attractive species were chosen to be shown on 160 pages of this pretty book by 150 line drawings and over 100 colour photographs. The collection which is arranged in the alphabetical order of Latin names, is represented prevalently by herb plants although some of the most interesting dwarf shrubs are also mentioned. The main criteria for this representative selection were not only the striking character of the plant habit but also the suitability for its planting.

In the introduction, short information on laying out a rock garden and alpine house, plant propagation and seedling techniques, and recommendations how to avoid attacks of pests and diseases are given. For each plant, the site of origin, morphological characteristics (the height, branching, shape, size and colour of leaves and flowers) and the requirements on single environmental factors (moisture, soil type and pH, temperature, insolation) are specified. Where needed, peculiarities for the management of a plant are stressed.

We have to agree with the author that rock gardening in miniature is almost a disease of our century so that anyone who succumbed to it will enjoy making acquaintance with this book.

DANUŠE HODÁŇOVÁ (*Praha*)

CREASY, L. L., HRAZDINA, G. (ed.): *CELLULAR AND SUBCELLULAR LOCALIZATION IN PLANT METABOLISM*. — Recent Advances in Phytochemistry, Vol. 16. Plenum Press, New York — London 1982. 277 pp. \$ 37.50.

This volume arose from the Symposium on the Cellular and Subcellular Specialization in Plant Metabolism which was held during the Annual Meeting of the Phytochemical Society of North America at Cornell University in 1981. Eight chapters which deal with the major cell structures and specialized cells have been written by selected authors. G. J. Wagner describes the role of vacuole in solute storage and sequestration and discusses methods of vacuole isolation. The nature of cyanide-resistant pathway in plant mitochondria is discussed by J. W. Siedow and metabolism of plant peroxisomes by A. H. C. Huang. Interesting data on the role of microtubules in plant cell wall growth are summarized in the chapter of M. C. Ledbetter. Carbon metabolism in chloroplasts and guard cells is described by S. C. Huber and W. H. Outlaw, respectively. W. H. Campbell and C. C. Black refer on cellular aspects of C_4 leaf metabolism and A. J. Cutler and E. E. Conn describe synthesis, storage and degradation of plant natural products using cyanogenic glycosides as an example.

The book reflects the recent progress of studies of functions and characteristic metabolic features of specialized plant cell structures which have been stimulated by the development of new methods. The most interesting is information about the specialized functions of various cell types and reflection of this specialization on metabolic level. All contributions are written as review articles simultaneously presenting some results of author's experiments. This approach makes the book suitable for scientists, lecturers and advanced students of plant biochemistry and physiology. Data and ideas presented in the book are also important and stimulating to those interested in applied plant sciences (uptake and assimilation of nutrients, productivity of plants, formation and distribution of secondary substances, etc.).

M. KAMÍNEK (*Praha*)

HAWTIN, G., WEBB, C. (ed.): *FABA BEAN IMPROVEMENT*. Proceedings of the Faba Bean Conference held in Cairo, Egypt, March 7–11, 1981. World Crops: Production, Utilization, and Description. Volume 6. — Martinus Nijhoff Publishers for the ICARDA/IFAD Nile Valley Project, The Hague — Boston — London 1982. 398 pp. Dfl. 100.00; approx. US \$ 42.50.

This publication arose from the first International Faba Bean Conference supported mainly by the ICARDA/IFAD Nile Valley Faba Bean Project. This conference was attended by 150 participants who presented forty contributions on faba bean genetics and breeding (10 articles), agronomy in Egypt and Sudan (3 articles), nitrogen fixation (2 articles), physiology (5 articles), pathology and breeding for resistance to diseases and pests (12 articles), technology of production (1 article), role in the diet (2 articles), cooking quality (5 articles) and on national programs of research, breeding and production in Egypt and Sudan. Judging from the scope and standard of the contributions the aim of the Conference was to summarize existing knowledge for future potential improvement of this crop as a protein stock feed particularly in the Nile Valley countries. Leading specialists from Egypt, Sudan, Syria, the United Kingdom, Germany, Canada, Italy, France, Spain, the Netherlands and Sweden were able not only to contribute from their personal experience but in return to gain from the knowledge of the Nile Valley conditions and from close contact with so many of the world's faba bean scientists. As a whole, this book may be a good survey of current knowledge and an excellent source of references on this crop.

JARMILA SOLÁROVÁ (*Praha*)