

FRISSEL, M. J. (ed.): *CYCLING OF MINERAL NUTRIENTS IN AGRICULTURAL ECOSYSTEMS*. Developments in Agricultural and Managed-Forest Ecology 3. — Elsevier Scientific Publishing Company, Amsterdam—Oxford—New York 1978. 356 pp. US \$ 39.75, Dfl. 95.00.

This volume is the outcome of a symposium on the Cycling of Mineral Nutrients in Agricultural Ecosystems. It was the First International Environmental Symposium of the Koninklijke Nederlandsche Heide Maatschappij (Royal Netherlands Land Development Society) cosponsored by the International Association for Ecology and Elsevier Scientific Publishing Company. The meeting was held on the Elsevier Premises in Amsterdam from 31 May to 4 June 1976. A number of specialists were invited to write review papers on the cycling of mineral nutrients in agricultural ecosystems. The agro-ecosystems were described from the United Kingdom, The Netherlands, Germany, France, Czechoslovakia, Israel, Japan, Australia, the U.S.A. and South Africa. The separate reviews were compiled by the editor into one integrated general review, which together with the results of the discussions formed the basis of this final report.

World population has continued to grow and the increase in the supply of food has managed to keep pace with this rise thanks to the application of modern agricultural technology. The transfer of minerals between different types of living matter and parts of the physical environment may be described as nutrient cycles. The principles of nutrient cycling, the mechanisms which control the movement of elements, and their state of balance in parts of the systems, or in complete systems, are discussed in Chapters 2 and 3. Methods of manipulation which involve changes in crop, cropping system or animal grazing systems are briefly described at the end of Chapter 3.

This study was built upon a relatively simple unit, the agro-ecosystem, usually represented by a single farm. Agro-ecosystems and the scheme used to classify the 65 examples described at this symposium are discussed in Chapter 4. It was assumed that an agricultural ecosystem is an organization of resources, managed to a greater or lesser extent by man, with production of human food as one of its main objective.

The nutrient cycling pools and pathways (or model) and the design and format of the tables used as the pattern for collecting all the data for the cycles of nitrogen, phosphorus, and potassium within a wide range of contrasted agro-ecosystems, are described in Chapter 5.

The main body of the report (Chapter 6) consists of nutrient cycling data from about 65 agro-ecosystems which are described in detail.

Main conclusions regarding the conceptual model, the method of presenting data, the methods summarizing and identifying gaps in the data, and the influence of the latter on the use of fertilizers in agro-ecosystems are summarized in Chapter 7.

The last Chapter (8) summarizes some of the major findings and indicates how accurately the unified data support the conclusions of the discussions. It concludes by listing the data that are still required to increase the precision of nutrient balances for agricultural ecosystems. The acquisition of more precise data may enable agronomists to forecast more accurately the effects of changes in fertilizer practice both on agricultural production and the quality of the environment on a world wide basis.

Chapter 9 gives a list of references which were necessary for preparing the review papers.
MARIE KRÁLOVÁ (*Praha*)

SUTCLIFFE, J.: *PLANTS AND TEMPERATURE*. Studies in Biology No. 86. — Edward Arnold Publishers Ltd., London 1977. 57 pp. Paperback £ 1.50, hard covers £ 3.00.

Another well written book of this series is hidden under the laconic title. The author has again confirmed his vast knowledge and didactic abilities and managed to squeeze into a small space not only the basic biochemical and biophysical laws, but also the demonstration of a great many examples of the action of extreme temperatures — both low and high — on plant growth and development. Temperature — as one of the most important ecological factors — conditions plant distribution on a world-wide scale. Obviously not everyone — even among experts — can realize the whole complexity of its effects on a metabolic level (respiration, photosynthesis), its effect on cell division and enlargement, on seed or bud dormancy, and on plant flowering. The difference in thermosensitivity in the course of different plant life phases or even in the course of a single diurnal cycle. The chapters entitled "Heat Balance in Plants", "Low Temperature Tolerance" and "High Temperature Tolerance" are especially interesting, also from the point of view of application. On the other hand, in discussions on possible mechanisms of resistance to extremely low temperatures, at least basic data on studies of this problem, using either animal or plant cell tissue cultures, should not be missing. Otherwise, as far as content and form are concerned, the book can hardly be criticised. It will be useful not only to students and their teachers but also to scientists both as "memory refreshment" and as a source of new data.

Z. OPATRŇÝ (*Praha*)

KOTYK, A., JANÁČEK, K.: **MEMBRANE TRANSPORT. An Interdisciplinary Approach.** — Academia, Praha 1977. Kčs 105.—.

The last two decades in cellular and molecular biology have been dominated by "central dogma" and consequently the scientific interest has been focussed on nucleic acid research. However, it is not difficult to perceive in the last years that the revival time of membranology arrives as it ought to be. The Czechoslovak school has a well established tradition in this field and the authors of the "Membrane transport" are well known representatives of it. Their monograph is designed as a gate to membranology for biologists and biophysicists.

The subtitle "An interdisciplinary approach" is by no means a deceptive promise. The field of membranology is first introduced to the reader in a concise sketch and the evolutionary relevancies are discussed. In the second chapter the principles of interface physicochemistry are presented, and the individual components of membranes (lipids, proteins and carbohydrates) are described. Everybody who uses this book as an introductory source in membranology — in particular students — will certainly appreciate that the authors have not limited themselves to the presentation of facts and generally accepted theories of the membrane structure, but have included in this part condensed information about the methods most frequently used in the study of membranes: X-ray diffraction, infrared spectroscopy, ultraviolet and fluorescence spectroscopy, polarization methods, nuclear and electron spin resonance, calorimetry and morphological methods, including freeze-fracture and freeze-etching. Isolation of biological membranes and preparation of artificial model membranes are explained as well.

The main types of natural membranes are also briefly characterized in this chapter, and typical membrane structures (organelles) are illustrated: mitochondrion, chloroplast, mesosome, endoplasmic reticulum, Golgi apparatus, lysosome, tonoplast, nucleus, and others. A different arrangement of this chapter, or rather subdivision of chapter 2 into two or three chapters, might help the reader to orientate and would fit better the diversity of its content. The quality of reproductions of microphotographs does not come up to the standard of a top publishing house in science.

Many readers will appreciate the brief recapitulation of some parts of thermodynamics, which is indispensable for understanding chapters 4 and 5. Thus, refreshment of reader's orientation in equilibrium and steady state conditions together with useful information about network thermodynamics is the aim of chapter three. Even biologists who are not skilled in using the mathematical formalism, need not be afraid of the next two chapters — transport of non-electrolytes and transport of ions. The presentation is intelligible, having regard for the readers who work in other fields. Difficult steps in mathematical derivations of expressions used are explained *in extenso*. The chapters are written in such a way that a reader who does not feel like going through all mathematics at first reading, may just learn principles and go into detail only in those parts which are of main interest to him.

Readers engaged in the biochemical or physiological aspect of membrane transport may get the impression that the physicochemical aspect is overloaded. I think this is not the case. On the contrary, an intelligible and comprehensive review of quantitative treatment and basic thermodynamics in transport phenomena is very useful. The rational source of such feeling may lay in the shortness of chemical, macromolecular and physiological parts. There are paragraphs "Chemical nature of non-electrolyte transport systems" and "Chemical nature of ion-translocating systems", but their size may appear rather scanty (10 and 17 pages respectively, including tables, figures and ample structural formulas). This is, however, a question of the individual approach: in each interdisciplinary field — not only in membranology — the authors have to choose how far the sidetracks to adjoining branches should be followed. Their decision defines the profile of their work, which is always subjective and is subjectively judged by the reader. We have to respect the authors' right to set the proportions. I do not consider the design of the monograph to be undesirable, particularly because shortly afterwards the same publishing house issued another title edited by C. Haškovec ("Plasmatic membrane and cellular functions" Academia, Praha 1978), where many contributors cover the field of membrane biochemistry, physiology evolution, genetics, etc.

In the last two chapters the water transport (10 pages) and transport by special mechanisms (7 pages) are surveyed. Owing to their condensed size, such topic as permeation of oligopeptides, pinocytosis and uptake of nucleic acids are presented only in a synoptical form.

The list of references, which includes 412 quotations covering the period from 1851 to 1974 is a valuable guide for everybody who wants more information on membranology.

We can conclude that the book by Kotyk and Janáček can be recommended not only to all membranologists, but to all students and researchers in physiology (animal, plant, bacterial), general biology, pharmacology and similar disciplines, since the role of the membrane as a link

between the outside and the inside in living systems is so varied and fundamental that there could be no physiologically directed research in any field of biology which would not find the membrane to play an important role.

J. DROBNÍK (*Praha*)

ADAMSON, D., BATES, M.: NUCLEUS. ENGLISH FOR SCIENCE AND TECHNOLOGY. BIOLOGY. — Longman Group Ltd., London 1977. 110 pp., £ 1.48.

ADAMSON, D., BATES, M.: NUCLEUS. ENGLISH FOR SCIENCE AND TECHNOLOGY. BIOLOGY. TEACHER'S NOTES. — Longman Group Ltd., London 1977. 72 pp., £ 1.10.

English has — without doubt — become a most often used language for scientific communications. Nevertheless, the language of papers and lectures presented in English by scientists whose mother tongue is other than English is often very bad. It is not only necessary to know correct terms, their pronunciation and spelling, but also how to make sentences and present clear and concise statements. Hence the idea of Longman publishers to publish the series Nucleus was a very sound one. The basis of this series is the "General Science" course. Related to this core volume there are nine courses for specific subjects, of which Biology is one. Each course consists of two booklets: one for student and another for teacher. They present a valuable basis not only for classes, but also for individual learning.

Both volumes contain twelve units dealing with various aspects of biology. Those in the student's book are supplemented with many figures in the style of "Orbis pictus" by Comenius. Each unit contains four sections: Presentation (new language items and their definitions), Development (expanding the information), Reading (supplementing further facts and terms and presenting brief articles for reading), and Listening (figures and terms as a basis for listening to the teacher's text). The twelve units are: (1) Properties and Shapes; (2) Location; (3) Structure; (4, 7, 9, 10) Measurement (General, Quantity, Proportion, Frequency, Tendency, Probability); (5, 6, 8, 11) Process (Function and Ability, Actions in Sequence, Cause and Effect, Method), and (12) Consolidation. In addition to this there are three Revision units. The units contain topics dealing with plants, animals and microorganisms. Of plant topics, plant morphology and anatomy, seed germination, photosynthesis, starch test in leaves, forest canopy, etc. are presented. The student's volume is supplemented with a glossary containing the terms, their pronunciation and explanation, with the figure of the unit where it is used, and with a bibliography (14 references).

The teacher's volume contains general paedagogic notes how to teach this course, and then detailed information to each unit, containing its aims, main language items, notes, texts for listening, and correct answers to exercises.

The volumes present an ideal course of English for general biology, good for undergraduate and postgraduate students. In the year of first edition a second impression was produced, being a sign of success. Printing in Hong Kong ensured a reasonable price.

Z. ŠESTÁK (*Praha*)

HÜTTERMANN, J., KÖHNLEIN, W., TÉOULE, R., BERTINCHAMPS, A. J. (ed.): EFFECTS OF IONIZING RADIATION ON DNA. Molecular Biology, Biochemistry and Biophysics Vol. 27. — Springer Verlag, Berlin—Heidelberg—New York 1978. 383 pp., 74 figs. Cloth DM 86.—, US \$ 43.00.

Twenty-six West European authors participated in writing this monograph specialized in one of the most important fields of radiobiology — the interaction of ionizing radiation with DNA, i.e. the processes which take place before, during and after the induction of DNA lesions. This chronology of events corresponds more or less to the subdivision of the book into three sections called Physical Aspects, Chemical Aspects and Biological Aspects. Each section represents an independent part of the book, having its own list of references common for all chapters of the section.

The section Physical Aspects describes both the physical properties of intact target molecule — DNA — and the general features of ionizing radiation important for understanding its interaction with living matter. The main part of this section deals with the formation of free radicals in simple DNA constituents as well as in the DNA macromolecule, with their structure and their yield after the direct or indirect action of radiation. The section is closed by a chapter dealing with the transfer phenomena e.g. the intramolecular modifications altering the radical yield, the changes in radical distribution due to photosensitizing dyes etc.

The second section — Chemical Aspects — concerns the reactions and reaction products of hydroxyl radicals, hydrogen atoms and solvated electrons with DNA bases, nucleosides, nucleotides and polynucleotides. Final degradation products of base components and sugar of DNA

are described in great detail. One short chapter characterizes the changes caused by irradiation in the secondary and tertiary structures of DNA as measured by melting curves *etc.*

A large part of the third section is devoted to the inactivation by ionizing radiation of phages, transformation principles, to the action of radiation on DNA and RNA synthesis, to the transcription, transcription *etc.* The calculation of DNA breaks, interpretation of dose response curves and modification of radiation damage by oxygen SH groups and by radical scavengers are also mentioned. The remaining part of this section pays attention to two main topics: DNA repair and mutagenesis. Whereas the chapter on DNA repair represents one of the best written reviews in this field, more information might be expected from the part concerning mutagenesis after the ionizing radiation. At the end of the 'Biological' section the whole section is shortly but critically reviewed and most perspective problems are indicated. I wish this kind of closing chapter were also at the end of both previous sections.

Although this book summarizes the majority of most important problems of DNA-ionizing radiation interaction, some of them were either omitted (*e.g.* interaction of radiation with chromatin) or described in less detail than might be expected (*e.g.* formation of double strand DNA breaks and their biological significance, action of high LET radiation). In spite of that it represents an excellent and hitherto solitary monograph.

J. VELEMÍNSKÝ (Praž)

BEWLEY, J. D., BLACK, M.: *PHYSIOLOGY AND BIOCHEMISTRY OF SEEDS IN RELATION TO GERMINATION*. In Two Volumes. 1. DEVELOPMENT, GERMINATION, AND GROWTH. — Springer-Verlag, Berlin—Heidelberg—New York 1978. — 306 pp., 122 figs., DM 90.—, US \$ 45.—.

The purpose of this book is to provide a review of up-to-date knowledge of the physiological and biochemical phenomena that occur in the developing, maturing, imbibing and growing seeds and processes related with them. The first two chapters present an introduction to the topics and bring a detailed account of seed structure with special attention to the chemistry and biology of seed food reserves and the site of their accumulation. The third chapter entitled "The Legacy of Seed Maturation" briefly reviews the developmental processes in the Gymnosperms and Angiosperms with respect to physiological and biochemical events in their appropriate context. The main part of this chapter is devoted to the production and storage of different types of reserves in the seeds, upon which embryo depends not so much during germination but in the course of subsequent growth and development into seedlings. The water uptake, its theoretical consideration and effect of environmental properties are linked up with the general concept of seed germination and seedling development in Chapter 4. In the next chapter present knowledge of cellular processes and activities associated with seed germination *i.e.* radicle emergence and subsequent growth connected with reserves mobilization is concentrated. In the chapter "Mobilization Reserves" the authors discuss events taking place after radicle emergence, which are necessary for the maintenance of growth of germinated seeds *i.e.* the supply of breakdown products of stored reserves to growing axes. The major part of the concluding chapter is devoted to the enzymes controlling the mobilization of stored reserves, especially in the cereal grains, mainly barley and wheat, with an account of control processes in other seeds.

All chapters are documented by diagrams, tables, line drawings and photographs, and are complemented by lists of references in which the articles of general interest are pointed out. The readers will also find Plant, Author and Subject indexes at the end of book.

The book can be recommended above all to research workers interested in seed physiology and biochemistry, agronomy and related disciplines and to specialized postgraduate students. I look forward to the second volume of this interesting and well arranged book, the content of which is published in this volume.

JARMILA SOLÁROVÁ (Praž)

HANAN, J. J., HOLLEY, W. D., GOLDSBERRY, K. L.: *GREENHOUSE MANAGEMENT*. — YARON, B., BOMMER, D. F. R., SABET, B. R., THOMAS, G. W., VAADIA, Y., VAN VLECK, L. D. (ed.): *ADVANCED SERIES IN AGRICULTURAL SCIENCES 5*. — Springer-Verlag, Berlin—Heidelberg—New York 1978. 530 pp., 283 figs., DM 94.—, US \$ 47.—.

Development of greenhouse operation and technology as well as expansion of land area in greenhouse production after the Second World War is without precedent. Influencing plant growth and development by methods discovered by plant geneticists and physiologists in recent years has been widely introduced into regular greenhouse production practices. Greenhouse production of vegetables and flowers all over the world helps today to compensate for the climatic

disadvantages of the region and to provide mankind with fresh vegetable and flowers all the year round.

"Introduction" characterizes contemporary state of greenhouse production and summarizes factors affecting greenhouse management from the economical point of view. Chapter 2 deals with solar radiant energy as a dominant factor in greenhouse environment and with possibilities of employing supplemental irradiation sources, their types, installation and utilization for affecting plant photosynthesis, growth and development. Chapter 3 "Greenhouse Construction", unusually placed among the chapters on the effect of environmental factors, discusses principles, designs, structures of and perils to greenhouse structures, and construction costs. It also brings a survey of equipment which can be used to control conditions and to evaluate their limitations. The relationship between temperature, its control in greenhouses and effects on physiological functions, crop growth and development is considered in the most voluminous chapter "Temperature". Chapter 5 deals with the effect of water stress, control of water demand, importance of air humidity, irrigation systems, measuring and controlling water in soil and in air. In the comprehensive chapter "Soil and Soil Mixtures" fundamental information is presented on physical and chemical properties of soils, soil mixtures and inert media that occur in limited volumes of containers, benches, pots or flats, in which the majority of greenhouse crops are grown. This chapter deals further with problems associated with plant cultivation in shallow soils, nutrition, water relation, drainage and leaching. Chapter "Nutrition" discusses 13 elements, absorbed by plants from the cultivation media, methods of their application and factors affecting ion uptake. Chapter 8 shows the opportunity to improve plant photosynthesis and plant growth by rising CO₂ levels in greenhouses, which often decreases below the ambient concentration and compensation point. Practical aspects of CO₂ application in greenhouse management is complemented by the discussion on the air contamination by current pollutants and by their potential to damage plants and reduce crop value. Chapter 9 is devoted to disease and pests, their prevention and control methods in very favourable greenhouse environment without natural enemies. Chapter "Chemical Growth Regulation" deals with the recent tools available for plant development and growth control and for modifying physiological processes. In the remaining chapters "Business Management" and "Marketing" attention is paid to the technology of production, to motivating, planning, directing, organization and controlling the marketing economy.

All chapters are illustrated by useful diagrams, photographs and tables. The book, using dominantly metric units, is complemented by 16 conversion tables for metric and English units, vocabulary of used terms and symbols, and a subject index. A great contribution of the publication is the comprehensive summation of fundamentals of plant physiology necessary for greenhouse production practice.

The book is very useful for practical greenhouse growers, managers and students to whom it provides sufficient background for understanding the fundamental role of environment in plant growth regulation.

JARMILA SOLÁROVÁ (Praha)

NORTON, D. C.: *ECOLOGY OF PLANT-PARASITIC NEMATODES*. — John Wiley & Sons, New York—Chichester—Brisbane—Toronto 1978, 268 pp., 26 figs. £ 16.95.

The publication provides basic data to a more profound study of the ecology of plant-parasitic nematodes, which are based on the evaluation of over 800 papers. The ecology of nematodes and their significance in natural and agricultural ecosystems are described in 11 chapters. The first chapters deal with the phylogenesis of nematodes and with their active and passive clustering and movement in soil. Other chapters emphasize the effects of natural and agricultural habitats, the relations to phytocoenosis and plant tissues. Nematode population changes which elucidate their importance in ecosystems are described in brief. Much attention is given to the effects of the soil environment on the nematodes with an emphasis on the physical and chemical soil properties. The influence of the soil profile, mineral components, temperature, aeration, organic matter and mineral fertilizers on the reproduction and survival of nematodes is assessed. Findings concerning the parasitism of nematodes and their economic significance from the aspect of interspecific interaction and the effect of cultivation on the nematode populations are also noted. The extent and scope of the different chapters are in proportion to current knowledge of the given topic. In some parts, where data on nematodes are still unavailable, the publication suggests approaches which are used for the study of ecology of other groups of animals.

The ecology of nematodes, compared with other groups of animals, is so far less familiar and many facts are still missing and await further research work. The author of the book suc-

ceeded in elaborating current data on the ecology of plant-parasitic nematodes and made the study of this branch easier to all who might be interested. The publication may be recommended to plant-parasitic nematologists and to all who are interested in the ecology of animals.

J. ŠEDIVÝ (*Praha*)

RÖBBELEN, G., SHARP, E. L.: MODE OF INHERITANCE, INTERACTION AND APPLICATION OF GENES CONDITIONING RESISTANCE TO YELLOW RUST. — Verlag Paul Parey, Berlin—Hamburg 1978. 88 pp. DM 41.—.

Advances in Plant Breeding, supplement 9 to Journal of Plant Breeding was dedicated to Professor Dr. K. Hassebrauk, a famous specialist in yellow rust. The booklet is based on Hassebrauk's monograph on yellow rust (*Puccinia striiformis* West.) published in four successions from 1965 to 1975 in „Mitteilungen der Biologischen Bundesanstalt für Land- und Forstwirtschaft“, Berlin-Dahlem, and on recent papers on genetics of wheat and barley resistance to yellow rust. It comprises a short introduction and chapters on genetics of host-pathogen relations and on selection for resistant cultivars.

The chapter on genetic control of host-pathogen relations contains results of classical genetic analyses of resistance indicating monogenic resistance, results showing interaction of several resistance genes and results demonstrating quantitative inheritance of resistance. Inheritance of field resistance, of virulence in the pathogen, origin of new virulence genes and possible molecular mechanisms for the genetic control of host-pathogen relations are described with sufficient details.

The chapter on selection for resistant cultivars deals with breeding for absolute resistance, for relative resistance and for tolerance. Breeding methods, genetic sources of high resistance in cultivars as well as in primitive and alien species and new concepts for the use of high levels of resistance are presented. Particular attention is devoted to modern approach to breeding for relative resistance in the subchapters on polygenic types of resistance, field resistance, pathotype independent resistance and selection for general resistance. Breeding for tolerance is discussed only briefly.

On 70 pages of text and 14 pages of literature the booklet presents a comprehensive review of the present knowledge of genetics of resistance to yellow rust and breeding for resistance. Because yellow rust is an important wheat and barley disease the booklet will certainly find devoted readers among plant breeders as well as among plant pathologists. It can also be recommended to biologists interested in disease resistance of plants and plant genetics.

P. BARTOŠ (*Praha*)

NOVER, L., LUCKNER, M., PARTHIER, B. (ed.): ZELLDIFFERENZIERUNG — MOLEKULARE GRUNDLAGEN UND PROBLEME. — VEB Gustav Fischer Verlag, Jena 1978. 582 pp. M 68.—/79.—. In German.

The monograph deals with molecular mechanisms of cell differentiation of prokaryotes and eukaryotes. It consists of 16 chapters written by 13 specialists. The authors tried to give a consistent conception of the differentiation on the basis of contemporaneous experimental data and apply it to the analysis of various life processes. The content of the book is divided into three parts. In the first one devoted to the biochemistry in gene expression (H. Reinbothe and L. Nover, 53 pp.), fundamental terms often used in the monograph, are elucidated. Following an introductory treatise on the history of the conception of differentiation (W. Berg and W. Heese, 11 pp.), the second part (L. Nover, 89 pp.) deals with molecular fundamentals of cell differentiation. The third, special part, discusses the experimental systems which enable one to get a detailed idea of the selected types of differentiation processes. It involves the following chapters: The regulation of adaptive enzyme synthesis in prokaryotes as demonstrated by arabinose regulons in *Escherichia coli* (L. Nover, 34 pp.). Light-induced transformation of proplastids in chloroplasts in algae and higher plants (B. Parthier, 47 pp.). The adaptation of proteins in animal cells affected by estradiol (M. Luckner, 16 pp.). Polytene chromosomes — a model system for the study of differentiated gene activity in specialized cells (E. Serfling, 28 pp.). Isoenzymes and differentiation (K.-P. Rindt, 28 pp.). Origin of secondary metabolism — a one aspect of cell specialization (M. Luckner, 29 pp.). Biosynthesis and accumulation of storage proteins during seed maturation (K. Münz, 24 pp.). Cell differentiation in connection with origin and function of immune systems (R. F. Richter and L. Nover, 24 pp.). Phagecoded programmes of gene expression in *Escherichia coli* cells (W. Witte and L. Nover, 37 pp.). The cycle of cell division as a programme of gene

expression (M. Luckner, 19 pp.). The control of morphogenesis in *Acetabularia* (R. Wollgiehn, 30 pp.). Cell differentiation and tumor state, as exemplified by plant tumors crown-galls (R. Krauspe, 19 pp.). The programme of development of a unicellular slime mold (B. Parthier, 32 pp.).

The monograph represents a consistent work containing a considerable amount of information presented in an original and modern way.

J. LUŠTINEC (*Praha*)

HAHN, F. E., KERSTEN, H., KERSTEN, W., SZYBALSKI, W. (ed.): PROGRESS IN MOLECULAR AND SUBCELLULAR BIOLOGY. Vol. 6. — Springer-Verlag, Berlin—Heidelberg—New York 1978. 354 pp. Cloth DM 86,—. US \$ 43.00.

First, it should be said that it is a very useful book including articles concerning the latest knowledge in a broad field of molecular and subcellular biology. Thus, the book is primarily dedicated to those who teach. The lab workers will appreciate the list of literature accompanying all over views, too. Volume 6 will be found especially interesting by all scientists who work in extrachromosomal DNA business, as three of the six articles deal with the following topics: S. L. Hajduk's review brings the latest knowledge of kinetoplast/k/DNA with special attention to the selective action of drugs which bind to /k/DNA and to possible mechanisms by which dyskinetoplastic cells are formed. L. Ebringer's chapter discusses the effect of antibiotics and synthetic antibacterial compounds (nitrofurans) on cell organelles, chloroplasts in particular. The outstanding overview by K. N. Timmins, S. N. Cohen and F. C. Cabello collects the current methods used in the *in vitro* cloning of DNA plasmid fragments and their subsequent analysis. After a short introduction concerning the action of restriction endonucleases the readers are acquainted with all steps required for DNA cloning (DNA fragment generation, DNA fragment joining, introduction of recombinant DNA molecules into a host bacterium, detection of cloned recombinant molecules and last but not least physical and functional characterization of recombinant molecules). Another three articles cover different topics: peptide bond formation in non-ribosomal systems written by H. Kleinkauf and H. Koischwitz, opiate receptors and their endogenous ligands (endorphins) written by A. Goldstein and B. M. Cox, and mechanisms of lymphocyte transformation written by R. L. O'Brien, J. W. Parker and J. F. P. Dixon.

In conclusion, volume 6 continues the tradition of publishing the carefully selected articles in molecular biology and medical pharmacological aspects.

P. TICHÝ (*Praha*)