

Book Reviews

Kinzel, H.: Grundlagen der Stoffwechsel-Physiologie. Stuttgart: E. Ulmer 1977. 276 pp., 65 figs., 14 tabs. Soft bound DM 22,80

This book can be categorized as a valuable introductory text on thermodynamics and enzyme kinetics, especially for biology and medical students.

The development of the theme proceeds on the assumption of relatively simple background knowledge and with the author's creditable attempt of a clear presentation of principles with sufficient explanation of their wider significance.

In the first half equilibria and the basic thermodynamic functions are outlined with careful and obvious examples of biochemically important calculations, followed by an introduction into the mechanisms of enzyme action. In the second half the principles are applied to the glycolytic pathway and its interactions with the mitochondrial energy production, followed by a run from the Michaelis-Menten equation with activators and inhibitors through steady state equilibria to cooperativity and other allosteric phenomena. Finally there is a chapter on regulation and another on basic ATP consuming processes.

Simple yet clear diagrammatic representations excellently complement all chapters.

In an epilogue the author consolidates a few general philosophical contemplations by a quotation of Teilhard de Chardin. As one who lectures on the subject and knows the intricacies when trying to help beginning students to grasp the topic, I found the progress throughout the book logical and clear. Students are likely to learn from it much that is correct and important. They should also find it readable and even enjoyable.

H. Frunder, Jena

Dudits, D.; Farkas, G.L.; Maliga, P. (Eds.): Cell Genetics in Higher Plants. Proceedings of an International Training Course, July, 1976 Szeged, Hungary. Budapest: Akadémiai Kiadó 1976. 251 pp., 58 figs., 12 tabs. Cloth \$ 15,--

The Biological Research Center of the Hungarian Academy of Science in Szeged organized an International Training Course on "Cell Genetics in Higher Plants" from 5 to 17 July, 1976, sponsored by ICRO, UNDP and UNESCO. The course included lectures and practicals, and this is also the order according to which the volume is arranged. It contains on the one hand papers and on the other hand instructions on the practicals. The presence of most prominent representatives in the field of cell and tissue culture (except for the Japanese workers) guarantees high quality and topicality of the book.

Unfortunately the opening lecture given by G. Melchers and characterizing "the present stage of plant cell genetics" is represented only by an abstract with references to other articles. Perhaps this is due to the editors' assumption that the book is preferred by readers who are quite familiar with the field of cell and tissue culture and with the literature quoted. In contrast to this, the lecture by Street is very detailed, and therefore it can be considered as a real introduction to this method. All the other contributions can be classified into four groups: (1) Transformation, (2) Somatic hybridisation (protoplast culture), (3) Mutation and Selection and (4) Pollen cul-

ture, protoplast culture being the main subject both of the lectures and of the practicals.

The first group contains papers on integration of exogenous resp. plasmid DNA into plant cells and cell cultures (Lurquin; Cannon) and on the transfer of nuclei and organelles into isolated protoplasts (Potrykus, Lörz).

The second large group comprises isolation, culture and fusion of protoplasts generally (Gamborg; Binding) and refers to the difficulties with cereals in particular (Potrykus). Furthermore it includes selection of intra- and interspecific fusion in *Aspergillus*, cytological studies of heterokaryons (Kao), the use of subprotoplasts and the importance of protoplasts in virus research (Farkas).

In the third group selection systems suitable for protoplast fusions are offered (Dudits) and methods for induction and selection of mutants are described (Redei; Maliga).

As for the fourth topic, pollen culture, instructions on the practicals held by Mme. Nitsch are included.

At the beginning of the volume a list of all participants of the course is given.

It also encloses a rich collection of photographs, tables and diagrams as well as many references to the pertaining literature.

This volume may be considered to present an excellent survey for all specialists working in the rapidly developing field of cell and tissue culture and also, because of its detailed practical instructions, to serve as an aid to newcomers in this field.

F. Lieberwirth, Halle/S.

Gunther, F.A.; Davies Gunther, J. (Eds.): Residue Reviews, Residues of Pesticides and other Contaminants in the Total Environment, Vol. 65. Berlin: Springer-Verlag 1976. 103 pp., 1 fig. 7 tabs. Bound US \$ 16.00

Vol. 65 of Residue Reviews is dedicated to "Effects of Triazine Herbicides on the Physiology of Plants". The following aspects are reviewed herein, illustrated by more than 700 references: Photosynthesis - triazine action, structure-activity relationships-, Respiration, Plant constituents - dry matter and protein production, nutrients and chemicals influencing phytotoxicity, susceptibility of plants against phytopathogens-, Nucleic acids, Morphology and plant growth - injury symptoms, growth stimulations and inhibitions, interactions with plant hormones-, Seeds - absorption processes, germination, flowering and fruit set, seed yield and quality, second generation-, Plant variability in triazine resistance - factors affecting resistance, improvement of crop resistance to triazines by artificial selection and plant breeding, the natural evolution to triazine resistance in weeds-, Water balance. No effort has been made up to now to gather together the results of such a great number of reports and publications. The reviewing and comments of the authors benefit from the fact that their active involvement in basic studies had kept them in touch with the respective scientific community for a long time. Although much is known on the triazine activity now, more is still open for exploration, especially the mode of action on the molecular level.

W. Dedek, Leipzig

Schmidt-Vogt, H.: *Die Fichte*, Vol. 1.
Hamburg: Paul Parey 1977. 647 pp., 304 figs.,
1 table. Bound DM 198,--

A monographic work of the genus *Picea* (spruce) has appeared in a remarkable get-up with a clear arrangement of the contents. It is not restricted to the aspects of forestry. The first volume of the two-volume handbook deals with taxonomy, distribution, morphology and forest-communities of the spruce.

The first chapter is occupied with phylogeny, taxonomy, and distribution of the genus *Picea*. The initial phase is a short survey on the systematical position of the conifers, written by Vogellehner. Under the taxonomic point of view 36 species of the genus *Picea* are distinguished. In alphabetical order of the epitheta the species are treated in respect to the synonymy, infraspecific taxa, description and natural distribution. Photos of natural distributed populations, maps from natural areas of these taxa, photos of cones and other important details supply the correspondent text. The role of the introgressive hybridization during the evolution of the recent taxa is discussed in connection with the relationship between the species of the spruce.

Results from gas- and thinlayer-chromatographical analyses and more over from palaeontological research are regarded. The infrageneric structure of the genus *Picea* is demonstrated on the basis of the results from Willkomm (1887), Mayr (1890), Lacasagne (1934), Pilger (1960), Debazag (1964), Gausen (1966), Colleau (1968), Bobrov (1970), and Krüssmann (1972).

The three further chapters of the first volume, that means three quarters of the book, under several aspects deal with the spruce, *Picea abies*, used in forestry. Thus the second chapter is concerned with the history of distribution and the natural and artificial distribution of this important species. Morphology and ecology are the main points of the third chapter. Such important questions like variability, differentiation of races, research work with different provenances and others are discussed in detail. The fourth chapter at least is an independent contribution to the European forest communities of the spruce, written by G. Jahn. This work is a useful compilation on the basis of more than 2000 publications out of the wide distributed and extensive literature concerning the genus *Picea* and especially *Picea abies*. The cited publications are in a subdivided register alphabetically ordered. This manner is not easy for users and does not avoid repetition.

An alphabetical register finished the first volume of the valuable handbook. It will find many users not only under the several specialists of forestry but also under botanists and others.

The second volume is planned for 1980 and shall concern forestry questions like growth and produce biotic and abiotic damage and others.

W. Vent, Berlin

Knapp, A.: *Genetische Stoffwechselstörungen*, 2. Ed.
Jena: VEB G. Fischer 1977. 349 pp., 49 figs.,
42 tabs. Hard bound DM 59,--

The author states that this book has been written for the younger generation. It therefore is regrettable

that the manuscript that has been closed January 1975 only becomes available in 1977. This means at least a three-year lag in a field that is in a "stürmische Entwicklungsphase". For example carrier detection for the Lesch-Nyhan syndrome along the lines given on page 256 already was obsolete in 1975. The author himself already felt this problem and gave a six page "Nachtrag". Besides that the selection of the content is a personal one based on his own experiences, but of course a book of 256 pages can not be complete. It is mainly aimed at clinicians to stimulate their interest in the biochemical diagnosis and sometimes treatment of genetic metabolic diseases. In that respect the appendix (7 pages) with the description of some screeningtests for aminoacidurias can be helpful. Also in the main body of the book emphasis has been laid on aminoacidurias (78 pages). For diseases in carbohydrate and fett metabolism and for miscellaneous disorders 49, 32 and 64 pages respectively are used. An introductory chapter on biochemical genetics (19 pages) and a concluding chapter on counseling (9 pages) complete the book and make it a most helpful introduction for clinicians. It is regrettable that no reference is made to Harris's Principles nor McKusick's Mendelian Inheritance.

S.J. Geerts, Nijmegen

Rossen-Runge, E.C.: *The Process of Spermatogenesis in Animals*.

Cambridge: Cambridge University Press 1977.
214 pp., 38 figs., 11 tabs. £ 15.50

The presentation throughout this book is on a scholarly plane; the author has clearly read very widely, and traces the development of ideas from some of the earliest literature on the subject (much of which was published in French and German) to the most recent. He is wholly involved with the topic (both in active research as in acquaintance with the literature) and I do not know any other person today who could have treated it in such depth and with equal authority and understanding.

Owing to the very uneven way in which knowledge of spermatogenesis has grown for the various phyla of the animal kingdom, a balanced systematic approach is virtually impossible to achieve and I believe that the author has done as good a job as he could have in the apportionment of attention between animal groups. Inevitably this has meant that mammals, which have been investigated by far the most intensively, get comparatively summary consideration.

The historical background is competently described and discussed, and the discussion on the kinetics and microenvironment of spermatogenesis, on the degeneration of germ cells and on the polymorphism of spermatozoa provides a very useful and helpful analysis of many interesting features. The "Glossary" is well set out and constitutes a necessary inclusion, since much of the terminology of spermatogenesis is confusing.

Investigations on the reproductive physiology of the male are receiving an increased share of research funds these days and the book provides essential background material very difficult to come by otherwise. It can be warmly recommended.

C.R. Austin, Cambridge