

PEARMAN, G. I. (ed.): CARBON DIOXIDE AND CLIMATE: AUSTRALIAN RESEARCH. — Austr. Acad. Sci., Canberra 1980. 217 pp. \$ Aust. 19.95 + 5.50.

Twenty five papers presented at the Symposium on the "Carbon Dioxide-Climate Problem" which was sponsored by the Australian Academy of Sciences and held during September 15–17, 1980 in Canberra, are included into a handy volume, bringing an up-to-date Australian contribution to the global problem which concerns a great deal of science.

Plant ecology and plant physiology are well among those who are vitally concerned. Recent man-made increase of atmospheric CO₂ concentration may have far reaching influence on the biosphere and may decisively change the short term evolution of living organisms including mankind in a not distant future. It is a very good and well defined unintentional "experiment", which has to stimulate theoretical and practical science, technology and social science and economy as well.

Plant biologists have to estimate the probable changes in global primary production *via* concentration change, as well as a result of changes in temperature and incident radiation, which both mean a wide range of problems reaching from plant physiology to global ecology and agri- and silviculture.

Three introductory papers on resources of atmospheric CO₂ level and on the general question of the possible climate response are followed by nine papers describing the methods of monitoring and yielding primary results of measuring and reconstruction of the atmospheric CO₂ level increase, including modelling of the global carbon cycle. Three subsequent papers discuss the atmosphere-ocean exchange and its role in buffering the atmospheric CO₂ level. Four papers estimate the consequence of increased CO₂ concentration for photosynthesis, primary production, water use efficiency and carbon storage in the biomass.

Five last contributions try to predict — mainly on the basis of more or less elaborate models — the possible and probable changes in global climate of the Earth's surface due to the atmospheric CO₂ increase and to evaluate what may be called different scenarios of its consequences.

The forwarded analytical results and synthetic endeavour of Australian scientists working on the above significant global problem are to be highly appreciated and admired.

B. SLAVÍK (*Praha*)

FLEISCHMANN, K.: WANDERBUCH SALZBURGER LAND, SALZKAMMERGUT. — BLV Verlagsgesellschaft, München—Wien—Zürich 1981. 159 pp. + 120 in the additional booklet. Hard cover DM 39.—; \$ 298.—; Fr. 39.—.

This magnificently illustrated guide book published in a well-known and uniformly arranged series of BLV-Kombi Wanderbücher (Travelguides) suggests and recommends more than 200 trips in two districts of Austria for those who like nature, impressive landscapes and last but not least the hiking.

Breathtaking mountain- and valley-views, alpine pastures, intact forests, bizarre trees at the timber-line, wild plants and animals, waterfalls and peaceful lakes, lost corners of the nature as well as villages and the daily life of their inhabitants, folklore events and festivals, sport resorts and spas, are described and depicted mostly in splendid colour pictures, so that they themselves invite the reader to explore in person the natural beauty still preserved to our modern times.

Even the practical purposes have been well respected: The trips have been classified as far as the necessary physical effort of the hiker is concerned, described in useful details, and accompanied with maps, description of access roads and ways of arrival to the starting point and return, where to rest and to refresh oneself.

The most helpful data including concise descriptions and maps are once more compiled in pocket-size booklet inserted in the book which may be easily taken with when hiking.

It is a representative picture book and an extremely well designated guidebook at its best. It may serve as an exemplary volume splendidly fulfilling the above double purpose. Its main aim to allure modern man back to the nature has doubtless been achieved.

B. SLAVÍK (*Praha*)

LONG-TERM AND SHORT-TERM SCREENING ASSAYS FOR CARCINOGENS: A CRITICAL APPRAISAL—
IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. —
IARC, Lyon, Supplement 2, 1980. 426 pp. Sfr. 40.—, US \$ 25.—.

Great strides made in industrialization, chemical synthesis and the use of nuclear energy have been accompanied by tremendous risks. For example, the effects of man-made and naturally occurring mutagens on human health and their overall impact on the human gene pool, are of increasing concern to scientist and administrative personnel in a wide range of basic and applied fields. The Supplement 2 of the IARC Monographs presents reports of IARC *ad hoc* Working Groups, which met in Hannover 7–9 June 1979, on the use of long-term and short-term screening assays for detecting carcinogens and mutagens in our environment. The introductory part on the use of long-term carcinogenicity bioassays considers *e.g.* the following topics: personnel responsibilities, test substances, animal species and strains, route of administration, dose selection, inception and duration of exposure and observation period, number of animals per group, methods of randomization, safety measures *etc.* The part on short-term assays describes and discusses the use of mutagenesis assays with bacteria, mammalian cells, yeasts, moulds and with *Drosophila*. Further chapters report on the use of mammalian cell culture transformation systems, on the use of tests based on the induction of DNA damage and repair in mammalian cells, on tests where cytogenetic damage is scored as an endpoint and on mutagenesis assays on whole mammals. The volume also comprises the reports on metabolic activation systems and on the rationale for the deployment of short-term tests to predict carcinogenicity. A special annex provides guide-lines for the planning of short- and long-term tests and for analyzing the results obtained. This annex was prepared by a group of statisticians in such a way that it can be understood by biologists.

This Supplement of IARC Monographs will be valuable to all those interested in the carcinogenic and mutagenic effects of environmental chemicals.

T. GICHNER (*Praha*)

DAVIS, R. W., BOTSTEIN, D., ROTH, J. R.: ADVANCED BACTERIAL GENETICS. A MANUAL FOR GENETIC ENGINEERING. — Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, 1980. 254 pp.

This very useful laboratory manual contains protocols of a collection of experiments, realised at the world-known Cold Spring Harbor Laboratory during 3-week courses of advanced and modern bacterial genetics. It is divided into three sections: Experiments (pp. 13–68), Procedures (pp. 70–197) and Appendixes (pp. 201–254). The experiments (13 altogether) are devoted to manipulations with the transposon Tn10 (isolation of auxotrophic insertions, isolation of insertions near particular genes, deletion mutations generated by transposon), local mutagenesis, isolation of point mutations of lambda phage, deletion mapping of bacterial chromosome, plaque hybridisation of lambda phage DNA, gel hybridisation of DNA, electron microscopy of DNA, subcloning of lambda DNA in a plasmid vector *etc.* Strains of *Salmonella typhimurium* are used as bacteria. These strains are derived from *S. typhimurium* LT2, which seems to be nonpathogenic for man.

The voluminous section of procedures includes the descriptions of individual techniques and methods used in the experiments, *e.g.* plaque purification of phage, preparation of transducing phage, production of phage carrying Tn10, hydroxylamine mutagenesis, isolation of phage, plasmid and bacterial DNA, subcloning of DNA fragments as a part of a plasmid vector, transformation with plasmid DNA, agarose gel electrophoresis, general procedure for heteroduplex formation, hybridization to DNA or RNA on solid support *etc.* Some of these methods are of a broad usefulness and can be applied in many different experiments and research programmes. The same is true about appendixes. It is possible to find there not only some (relatively) trivial items (media, buffers, storage of bacteria, phages and DNA, *etc.*) but also a lot of recommendations which are very precious for everybody who starts his experimentation in bacterial genetics and genetic engineering.

The manual will be certainly used not only in teaching of advanced courses of microbial genetics and as a source of experimental protocols in research laboratories interested in the specific problems of genetic engineering. I am sure it will also serve as a permanent guide in other laboratories, specialised in fields only loosely connected with contemporary questions of bacterial genetics.

J. NEČÁSEK (Č. Budějovice)