

## Book reviews

**Potter, W. G. (ed.): Biotechnology: Spinks Eight Years on.** A Joint Symposium of the Royal Society and The Science and Engineering Research Council. London: The Royal Society 1989. 173 pp., several figs and tabs., 3 plates. Hard bound £ 48.25.

In 1980 a joint working party, which included the Royal Society, chaired by the late Sir Alfred Spinks, made a number of forecasts and recommendations regarding the future of biotechnology. This report is well-known as the "Spinks" Report. Eight years later a Royal Society Discussion Meeting was held to review the progress that had been made since 1980. This book contains the papers that were delivered at this particular symposium. It covers not only the scientific achievements but also the commercial and administrative developments and the problems in the management and coordination of national research programmes in Great Britain.

Distinguished authors coming from both the academic world and industry discussed the following topics: (1) biotechnology policy and achievement 1980–88; (2) protein engineering and design; (3) genetic engineering applied to the development of vaccines; (4) host-vector systems; (5) biosensors; (6) biochemical engineering challenges of purifying useful proteins; (7) the management and coordination of biotechnology in the U.K. 1980–1988; (8) plant biotechnology and its application to agriculture; (9) antibody engineering; (10) antibiotics: opportunities for genetic manipulation; (11) animal biotechnology; (12) use of enzymes as catalysts to promote key transformations in organic synthesis. The last two chapters deal with the exploitation of biotechnology in industrial enterprises. References are given at the end of each chapter.

All modern trends in biotechnology are covered in this volume. Leading experts have given an up-to-date review on the tremendous scientific achievements of biotechnology, which has been described as the major industrial revolution of this century. On the other hand, a number of commercial promises remain to be fulfilled.

This outstanding book is recommended to both researchers and administrators who are interested in the future development of biotechnology.

D. Gröger, Halle (Saale)

**Brock, T. D.: The Emergence of Bacterial Genetics.** Cold Spring Harbour Laboratory Press: Cold Spring Harbor 1990. 346 pp., 38 figs. 25/10 tabs and plates. Hard bound \$ 55.00.

This book investigates the history of bacterial genetics, i.e. of bacteriology and genetics, but not as is usually done, which is presenting only its contribution to molecular biology. Also, the author has illustrated the history of that field of natural sciences rather than of the scientists having carried that development. The book has profited by the inspection the author had asked from many of the authorities in that branch of genetics, S. E. Luria, J. Lederberg, J. Marmur, B. Davis, M. Cohn, N. Zinder, E. Wollman, F. Jacob, W. Hayes or W. Szybalski, and others.

The draft of the book is rather pragmatic. The 11 sections are entitled: Roots in Classical Genetics, Roots in Bacteriology, Mutation, Mating, Phage, Lysogeny, Transduction, Transformation, Gene Expression and Regulation. The closing section deals with the crossing "From Bacterial Genetics to Recombinant DNA". The author point out the crucial experiments which led to the precise quantification and to the identification of molecular determinants in heredity in the forties/fifties of this century, i.e. mutation, transformation, mating and transduction: these set the cornerstones of modern bacterial genetics and provided the first "insights" into the genetical base of life.

The reader will recognize the care the author has given to evaluating the framework of ideas, results and new methodological achievements which made that relatively short period of research activities as fruitful as it was. The reader and research managers of our day will certainly become stimulated to pay more attention to the substrate that science needs to become most efficient, i.e. by close contacts, the offspring of new methods, of novel ideas, crossing of diversities, as the latter becomes exemplified by the intimate merging of genetics, biochemistry and physiology, which led to the amalgamation of the fundamental dogma of modern biology: DNA→RNA→protein.

The book finally evaluates the recombinant DNA era to be the most important contribution of bacterial genetics to the tools that have permitted major advances in the understanding of the nature of life and the recent inventions of biotechnology.

The book is sufficiently illustrated, and is liberal in its presentation of the literature and quotations.

J. Hofemeister, Gatersleben

**El Bassam, N.; Dambroth, M.; Loughman, B. C. (eds.): Genetic Aspects of Plant Mineral Nutrition. – Developments in Plant and Soil Sciences, Vol. 42.** Dordrecht: Kluwer Academic 1990. 558 pp., many figs. and tabs. Hard bound £ 145.00.

This book is based on lectures held at the Third International Symposium on Genetic Aspects of Plant Mineral Nutrition in Braunschweig, June 1988.

The cultivars of many plants respond differently to various nutritional and stress factors, e.g. drought or salt stress. The response of cultivars to inorganic nutrients and stress conditions can be improved through the screening, selection, and breeding of the plant genetic resources. In addition to plant breeding techniques methods of plant biochemistry and genetic engineering are also necessary to achieve this goal.

The book under review is composed of five sections. The first section deals with the physiological and biochemical mechanisms associated with genetic variation in the utilization of major nutrients, such as nitrogen and phosphorus as well iron. The next section is devoted to genotypic responses to water stress, salinity and acidity, and deficiency or excess of elements. Special emphasis is given to aluminium, which is one of the main toxic factors of acidic mineral soils. Screening techniques for the detection of nutritional deficiencies and abiotic stress under genetic control are discussed in the third section. Especially informative are the articles by P. B. Vose concerning general problems of screening methods and by G. F. Rühl et al. on biochemical techniques for genotype identification and characterization.

Genetic variation in symbiotic systems, e.g. aspects of N<sub>2</sub> fixation as well VA mycorrhiza efficiency, are discussed in the fourth section. Germplasm resources and the creation of genotypes for specific environmental (including low input) systems are the topics of the last section in this volume. Most of the articles have been presented by plant breeders working with cereals and other crop plants.

The contributions are written by leading experts from all over the world. The results are well summarized and include a wide number of recent references (including the full titles). The contents of the book may be regarded as a comprehensive compilation of our knowledge in this important area of agriculture. This extremely presentable volume is recommended to scientific researchers from various disciplines interested or working in the fields of plant physiology and plant breeding.

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