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Book reviews

Jellis, G. J.; Richardson, D. E.: The Production of New Potato Varieties: Technological Advances. Cambridge: Cambridge Univ. Press 1987. 358 pp., 22 figs., 73 tabs. Hard bound.

This book is based to a large extent on papers presented at the EAPR/EUCARPIA Sections' meeting held at Cambridge, England in December 1985. The aim of the meeting was to cover the past, present, and future state of potato breeding, and varietal assessment.

Three introductory articles precede the papers presented. One gives a detailed history of the development of potato varieties in Europe (Jellis and Richardson), and the second and third give an overview on genetic resources for potato breeding and their preservation and utilization (Foldø, Glendinning). In the first chapter, conventional breeding strategies are reviewed as applied in the DDR (Scholz), FRG (Munzert), Netherlands (Van Loon), Poland (Swiezynski), and UK (MacKay, Dunnett). This chapter is complemented by short contributions on early generation selection and on screening for resistance to a range of potato diseases, pests, and environmental stresses. The next chapter includes review articles on potato variety assessment in the FRG (Bätz), France (Perennec), Netherlands (Van der Woude), Poland (Borys), and UK (Richardson), and short contributions related to variety assessment. The chapter on semi-conventional breeding methods comprises review papers on the following topics: (1) efficiency, improvement in utilizing wild and primitive *Solanum* species in potato breeding (Hermsen); (2) the utilization of *Neotuberosum* in potato breeding (Plaisted); (3) breeding at the diploid level and sexual polyploidization (Peloquin); (4) advances in population breeding (Mendoza). Some short papers on specific related topics conclude this chapter. A separate chapter is devoted to breeding strategies in relation to 'true potato seed' technology (Jackson).

Modern genetic manipulation and its relevance for potato breeding is treated in the following review papers: (1) an overview on recent progress in molecular biology and its possible impact on potato breeding (Flavell); (2) combined application of classical and unconventional techniques in breeding for disease resistant potatoes (Wenzel et al.); (3) genetic manipulation in potato using *Agrobacterium* (Ooms); (4) prospects of using tumor-inducing plasmid-mediated gene transfer for the improvement of potato varieties (Blau et al.); (5) use of protoplast fusion and somaclonal variation in potato breeding (Jones). A general summarizing paper by Thomson concludes the book.

In conclusion, the book is a comprehensive and coherent publication on the current strategies employed in breeding and assessment of potato varieties in different countries, on new developments presently entering the practice of potato breeding and on future prospects offered by new techniques of cell and tissue culture as well as genetic engineering. An extensive index of subjects greatly improves the accessibility of the book, which deserves the appreciation of potato breeders, potato scientists and the large number of biotechnologists using the potato as a model plant.

J. G. Th. Hermsen, Wageningen

Dulbecco, R.: The Design of Life. New Haven, Conn.: Yale University Press 1987. 458 pp., 11 figs. Hard bound $ 39.95.

The question "What is life" receives many diverse answers: life is change, movement, reproduction, structure, order, coordination, an amazing process, temporary stability, a hodgepodge. Renato Dulbeccos' answer is quite simple and clear – life is the expression of coded instruction. To the unprepared reader, this is made quite definite in a most unique way. The last 3 decades of biology have been characterized by an insight and understanding of the crucial role of DNA. Consequently, the only molecular structures presented in this book are those of RNA and DNA. By avoiding most of the difficult technical terminology that usually defeats the layman reader, the author is able to present the design of life without popularizing it or joking about it.

The book begins by describing the characteristics of DNA – how it is built, how it reproduces, how it instructs proteins, and how it is damaged and repaired. All topics relate to the main characteristics of sexuality, and even practical aspects of genetics, such as the machinery of the brain, the understanding of drugs, communication among cells, and defence mechanisms, are explained.

This book demonstrates not only the immense knowledge of the author, but also his didatic genius and his capacity for arranging and synthesizing facts from physiological, psychological, and even ethical research. I have never read a better introduction into the fundamental aspects of life science.

H. F. Linskens, Nijmegen

DaSilva, E. J.; Dommergues, Y. R.; Nyns, E. J.; Ratledge, C. (eds.): Microbial Technology in the Developing World. 1st edn. Oxford New York Tokyo: Oxford University Press 1987. 444 pp., illustrations. Hard bound £ 25.–.

When one thinks of biotechnology, one thinks of the production of cheese and wine, two of the oldest expressions of human civilization, as well as of the degradation of toxic wastes by genetically engineered "new" microorganisms. For both aspects of biotechnology, viz. the generation of commodity materials and the disposal of wastes, a great demand exists in just the developing countries. In 18 articles, written by 33 experts from all over the world, many practices and potential applications of microbial technology are illustrated. As can be expected from a book with such a broad scope and written by so many authors, the chapter contents are extremely heterogeneous. Besides essays on marine biotechnology, microbial bio-insecticides, and Chinese biogas production, the reader finds such topics as nitrogen fixation in tropical agriculture, bio-deterioration biotechnology, and how to establish a meaningful relationship with your computer, to give just a few title examples. Fortunately, the editors in their introduction caution against a euphoria surrounding a so-called biotechnology revolution: "In adopting those biotechnological processes that will yield positive socio-economic returns on the investments made, judicious selection is needed. [ ] . . . it is important that the problems be realistically understood before the commitment of scarce funds" (p. 3). With these critical remarks in mind, the reader can find a lot of incitations for further work. For this purpose, the detailed index and the references at the end of each chapter will also be helpful. The price of the book is adequate, concerning its hard cover get-up; for biotechnologists in developing countries, a cheaper soft bound edition should come out.

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