

Book reviews

Lupton, F.G.H. (ed.): Wheat Breeding: Its Scientific Basis. London, New York: Chapman and Hall 1987. 566 pp., 115 figs., 65 tabs. Hard bound £ 60.00.

The Plant Breeding Institute (PBI), Cambridge, closed its doors in 1987; the breeding sections were sold to a private company, whereas the sections engaged in basic research became part of the new Institute of Plant Science Research. This ended a historical era. The PBI had probably the most active staff in the world devoted solely to wheat science, and research was conducted in almost every branch of this study – breeding, pathology, entomology, genetics, cytogenetics, physiology, molecular and cell biology, and protein chemistry. The aim of the editor is to synthesize the acquired knowledge from these various disciplines into one volume before the staff members disperse. The opinion of this reviewer is that he has succeeded.

The book consists of 17 chapters which can be divided into the following three categories:

A) Historical review of cultivation (chap. 2) and breeding (chap. 3). In chapter 3, modern breeding in eight European countries, North America, and Australia is described in which semi-dwarfs are also included. The pedigrees of important cultivars in each country are illustrated.

B) Biology of wheat – including systematics and evolution (chap. 1), genetics (chaps. 4, 8), development and structure (chap. 10), and water relations (chap. 11). Most of these chapters are written with an international view of the disciplines. Chapter 1 discusses the classification of Triticeae, including *Aegilops*, *Secale*, and *Triticum*; the geographical distribution of individual *Aegilops* and *Triticum* species; and a section on the origin of polyploid wheats. Chapter 4 deals with chromosome engineering utilizing aneuploids; chapter 6 provides the genetic basis for almost 30 characters of wheat, and explains new biochemical and molecular techniques for chromosome analysis; chapter 8 handles the structure and organization of nuclear, chloroplast, and mitochondrial genomes. Research on the nuclear genome centers on DNA content, chromosome identification, and gene structure, whereas the chloroplast genome is described in terms of the genetic maps of wheat with a gene catalog, and genome diversity among *Aegilops* and *Triticum* species. Chapter 10 deals with the development of seedling, shoot apex, leaf, tillers, stem, and ear; chapter 11, the effects of various morphological, physiological, and metabolic characteristics on water economy and yield.

C) Breeding with respect to drought, disease, and insect resistance (chaps. 11, 13, 14, respectively), and grain quality (chap. 15). Four chapters on yield assessment (chap. 12), new cultivar production, including case histories at the PBI (chap. 16), triticale breeding (chap. 9), and future prospects (chap. 17) are included. These chapters deal mainly with work carried out in Europe.

Most chapters are highly successful in presenting a broad view of the subject matter with respect to the nature of the problems that were encountered, the approaches available for their solution, the achievements, and future perspectives.

Many comprehensive illustrations and a list of references are included in each chapter. This book should be regarded as an excellent memorial to the PBI, now non-existent, for its great contribution to wheat science and breeding. It is highly recommended to all wheat researchers, including graduate students.

K. Tsunewaki, Kyoto

Russell, P.J.: Essential Genetics. 2nd edn. Oxford, London, Edinburgh: Blackwell 1987. 493 pp., many figs. Soft bound £ 13.50.

“Essential Genetics” is the second edition of “Lecture Notes on Genetics” and presents the principles of genetics in a very understandable and readable way. A number of clear and impressive illustrations facilitates and stimulates the reader in his absorption of the information presented on up-to-date genetics.

In most chapters the comprehensive text indeed describes only “essential genetics”, as announced by the title. In order to keep the book to a reasonable length, it was not possible to pay attention to all the new aspects of modern genetics. In my opinion, however, it is essential for the understanding of genetics to know something about the repair mechanisms causing mutations, as, for example, SOS repair. And if the importance of centromeres and telomeres to artificial chromosomes is discussed, why not the function of ARS as well? On the other hand, I do believe that accurate knowledge of the initiation factors of translation is not so important in understanding genetics. The illustrations are so admirable that it seems presumptuous to criticize them, but on page 381 the codons of mRNA are separated by spacers, which may give the wrong impression to students. A glossary of terms and a set of questions and problems (answered at the end of the textbook) will help readers to increase their knowledge.

The author excellently explains all aspects of general genetics. The book will be very useful for learning facts and understanding genetic principles.

E. Günther, Greifswald

Announcements

The 8th International Congress of Human Genetics

The 8th International Congress of Human Genetics, sponsored by the American Society of Human Genetics (ASHG), will be held in Washington/DC, USA, October 6–11, 1991. The first formal announcement is scheduled for distribution in 1990. Suggestions for topics, speakers and special events will be forwarded to the appropriate planning committee. Individuals or organizations who anticipate developing pre- or post-congress events, as well as those who anticipate a need for working meetings during the week of the Congress, are especially urged to write.

Contact: J. J. Mulvihill, M.D., Secretary-General, ASHG, 9650 Rockville Pike, Bethesda, MD 20814, USA.