sented in *Genetics Today* (as the proceedings of a congress) will be available in most science libraries and will be seen by many microbiologists, plant and animal breeders, biochemists, geneticists, and immunologists. Graduate students may well use the volume for reference. By looking beyond the papers of immediate interest, each reader may visualize the breadth of a science considered by many to be at the center of modern biology. The view is well worth the effort.

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Plant Breeding

The Use of Induced Mutations in Plant Breeding (Pergamon, New York, 1965. 842 pp., $45), the report of the Food and Agriculture Organization–International Atomic Energy Agency technical meeting held in Rome in June 1954, is the latest and most comprehensive of the collective publications on the subject. The papers have been assembled under eight general headings, with one paper on the nature of mutations, two on diplontic selection, five on induced chromosomal changes, including recombination and forward mutation, eight on the characteristics and genetics of induced mutants, nine on mutation and breeding in vegetatively propagated species, 20 on mutagens and sensitivity to mutagens, and 21 on mutation and breeding in sexually propagated species.

As in most publications with numerous independent authors, there are repetitions and dislocations in organization. Nevertheless, the papers record an increment of progress in the understanding of some of the numerous variables that affect mutagenesis, mutant recovery, and mutant use in higher plants. There is evidence of gain in stature and maturity of the investigations reported, and especially in the cognizance of the contrasts in inducing mutations and in using them. No contribution is reported toward the identification of a specific relationship of mutagen, mutational site, and phenotype in any agronomic or horticultural character. Allusion to this goal is made, however, through subjective correlations with mutational events in bacteriophage, description of which is ably presented (by Heslot) in the leading article of the book. The role of induced mutations in quantitative characters, especially mutations of small effect—including their modification of macro-mutant expression—is emphasized in several papers. Special techniques and opportunities in vegetatively propagated material are well presented. The significance of ploidy in mutation breeding and the use of mutagens in planned structural rearrangements of chromosomes and chromosome segments are ably discussed. Especially advantageous mutants are reported. Several comprehensive review papers are included.

This is a report of an international meeting at which most countries with a scientific establishment were represented on the program. Notable exceptions were the Chinese mainland and U.S.S.R., although a remark offered in discussion by a Russian delegate and published with references and illustration constitutes a paper.

The work represents the efforts of a growing group of men who appear convinced of the inevitability of gaining control of the mutation process and putting it to use in fashioning the economic plants of the world. The volume summarizes what was known on the subject at the time of the conference; it also reflects the disparity between what will become the leading field of plant biological activity of the future and the hopefully inquiring and sometimes naive observations reported in its pages.

One cannot but agree that little in the way of improved agriculture has come from mutation breeding, but as the papers in this volume testify, much of the basic information on how to integrate artificial induction of mutation into older, plant-breeding methods has been attained, and many clichés concerning artificially induced mutation have been dispelled by these investigations. The volume is essential for anyone who is concerned with mutation and plant breeding and is recommended reading for anyone who works in either field.

The book is published as a supplement to volume 5 of *Radiation Botany* and has the same format as the journal. It is well illustrated and handsomely printed, with highly legible double columns in large type, and is very well bound.

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Radioisotopes and Medicine

The field of nuclear hematology is defined by E. Szirmai, the editor of **Nuclear Hematology** (Academic Press, New York, 1965. 605 pp., Illus. $22.50), as "the specific aspect of hematology which utilized radioactive substances (isotopes) for the study of morphology, physiology, and pathology of the blood cells and blood-forming organs, and explores the effect of radiation on the hematopoietic system and the peripheral blood." Chapters 1 to 9 of the volume are devoted to the area covered by the first half of the definition, and they include discussion of the use of radioactive isotopes in general hematology (chaps. 2 and 3); study of platelets (chap. 4); bone marrow kinetics (chap. 6); blood volume determination (chap. 7); and radioautography (chap. 8). In addition, the use of electron microscopy in hematology is discussed in chapter 5 and metabolism of blood cells in chapter 9. Chapters 1, 2, 3, and 7 are not well written, contain misleading information, and leave the impression that the authors were not up-to-date with respect to some of the topics discussed —for example, use of isotopes in the investigation of anemia and clinical considerations of shock. In the introduction (chap. 1) the stable isotopes nitrogen-15 and oxygen-18 are referred to as radioactive isotopes while two apparently nonexistent isotopes, carbon-16 and arsenic-321, are included. Consequently, the first half of the book is weakened, although chapter 4 and chapter 6 are particularly well done and are rather complete reviews. Chapter 5 presents a good survey of the literature on electron microscopy, but the style makes for difficult reading and the electron micrographs reproduced are not sharp.

The second half of the book is devoted to consideration of acute and chronic effects of radiation on the hematopoietic system (chaps. 10, 11, and 13); immunity (chap. 12); and blood coagulation (chap. 14). Chapter 16 is devoted to problems of bone marrow transplantation, while chapter 17 reviews radiation effects in man based on the Japanese experience with atomic explosions.

With the exception of chapter 15 (on nuclear hematology and blood transfusion), these chapters are well written, present thorough reviews of the pertinent publications, and are