The genetics of garden plants. (3rd ed.) M. B. Crane and W. J. C. Lawrence. Cambridge, Engl.: at the Univ. Press; New York: Macmillan, 1947. Pp. xvii + 299. (Illustrated.) $3.50.

The first edition of *The genetics of garden plants* was issued in 1934 and the second in 1938. This new edition has 11 additional pages of text and one new chapter which assembles the discussion of zenia and metazenia. Otherwise, the scope and the topics treated are the same as in the second edition. There is some revision to include information obtained in the extensive researches of the years since 1938.

In the words of the authors, "The aim of this book is twofold: first, to give an introduction to the essential principles of genetics and cytology; and secondly, to give an account of recent results in relation to horticulture" and "to describe principles as simply as the technicalities of our subject will allow." The authors have been highly successful in doing all this. They present information of both scientific and practical value in a manner that will interest a wide circle of persons who grow plants, such as gardeners, orchardists, and seedsmen, as well as the more technically trained horticulturists and plant breeders. Many of the plants that are discussed are commonly grown as ornamentals or as vegetable and fruit crops. Many of the features of their status and behavior may be observed. The authors correlate these features of character and behavior with the physical structures of the mechanism of heredity as these are revealed by the microscope and by experimental studies. The information given has a basis in facts that are of interest and often of practical value. Of the topics treated, mention may be made of the following: the basis and mechanisms of heredity as revealed by the behavior of chromosomes and genes; the origin, nature, and value of polyploidy; the chemical and genetical basis of flower color; the explanation of bud sports and chimeras, which have always been puzzling to the amateur gardener; the types of sterility in plants and their relations to the production of fruits; the histories of such commonly cultivated plants as potato, tomato, strawberry, sweet-pea and dahlia; and a survey of the means by which new and improved forms of plants are obtained.

In its particular scope and method of treatment this volume has no counterpart.

A. B. STOUT

The New York Botanical Garden

Experimental embryology in the Netherlands, 1940-1945. M. W. Woerdeman and Chr. P. Raven. New York-Amsterdam: Elsevier, 1946. Pp. xi + 132. (Illustrated.) $2.50.

This volume is one of a series of monographs on the progress of research in Holland during the war. It is a survey of the investigations of Woerdeman and his associates, Van Deth, Hampe, Trampusch, Ten Cate, Damstra, and Miss Huybers, at Amsterdam, and of Raven and his associates, Bretschneider, Nieuwkoop, Van de Kamer, Miss Exalto, Kloek, Klomp, Kloos, Lever, and Van Nieuwenhoven, at Utrecht. As the authors explain, their two laboratories were the only ones in Holland in which any systematic work in experimental embryology was done during the war years.

The investigations reported here cover many topics. They include experiments, with amphibian eggs, on: determination of lens, urogenital organs, neural crest, pineal body, lateral plate, germ cells, genital ridge, and polarity of epidermal and neural ectoderm; heterotransplantation of mouth ectoderm; induction of dorsal fin, ear, and limb; specificity of induction by different parts of chordamesoderm; effect of X-rays, trivalent arsenic, and carcinogenic hydrocarbons; respiration in relation to temperature and developmental stage; decapsulation of eggs with trypsin. A few experiments with chick embryos relate to the development of the germ cells, gonads, and their ducts. The pond snail, *Limnaea stagnalis,* is the subject of a rather comprehensive investigation, including studies on egg-laying; physical and cytochemical changes during oogenesis, cleavage, and early development; effects of centrifugation and of treatment with LiCl and with NaSCN. Some of the work has been published in detail in various journals.

Brief mention is made of the difficulties involved in attempting research during the war. Despite these difficulties, it is quite evident from this survey that the high caliber of work for which these laboratories are noted was maintained and that the experiments were performed in many cases with the usual thoroughness.

To illustrate further the nature of the problems under investigation, mention may be made here of a few of the general conclusions that are presented. From his studies on polarity Woerdeman concludes that determination is a gradual process and that the various manifestations of polarity in a particular tissue (e.g. direction of ciliary beat, axes of ear vesicle, direction of outgrowth of axon, etc.) are determined independently by the operation of different causative agents. The results of experiments on inductive capacity of medial and lateral parts of the archenteric roof are considered by Raven to support the view of a single "evocator" substance, present in high concentration medially and decreasing laterally. For neural plate induction a high concentration would be required, while neural crest would be induced by lower concentrations.

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The epithelia of woman's reproductive organs: a correlative study of cyclic changes. George N. Papanicolaou, Herbert F. Traut, and Andrew A. Marchetti. New York: Commonwealth Fund, 1948. Pp. vi + 53. (Illustrated.) $10.00.

In 1917 Stockard and Papanicolaou published their observations on the sex cycle of the guinea pig. Throughout the intervening 30 years, Papanicolaou has continued to devote his talent to amplifying the innumerable connotations which can be developed from this basis. The human vaginal smear has become a method of obtaining an insight to the ovarian function. In 1928 he pointed out that desquamated cancer cells can be recognized in the