

specificity of gene action especially in blood group determination ; and Dobzhansky discusses the adaptive significance of heterosis in populations. The notion of overdominance is, of course, taken up in a number of papers, that of Crow considering in particular its importance for the maintenance of variability in populations. Many of the authors discuss the methodology of breeding for heterosis, Sprague's paper being especially informative in the experimental evidence that it provides about the various schemes that have been proposed. A. J. Mangelsdorf sets out a series of postulates as a basis for the discussion of heterosis and other problems of plant improvement, and these can hardly fail to be of interest to geneticists and plant breeders alike, even though the author himself would hardly hope for their complete and universal acceptance.

Some of the papers may seem to many geneticists to be rather heavily statistical, but as Hull, for example, has repeatedly emphasised, only by this means can the problem of breeding for combining ability be approached with any real prospect of success. Among these statistical contributions, that of Comstock and Robinson is noteworthy for its discussion of the efficiency of experiments designed to partition the heritable variation and to measure dominance. Finally, we should note a review by the editor of the volume, J. W. Gowen, of experiments in *Drosophila*, from which a biometrical analysis of the agencies affecting heterosis was possible. His conclusion that "genes in quantitative inheritance are not stable in their effects" accords well with the evidence from other lines of research and emphasises once again the relative or conditional nature of familiar genetic concepts when one moves into the study of continuous variation.

The styles, treatments and aims of the thirty papers are as varied as their subject matter, and not all can perhaps hope to command either a wide audience or general acceptance. There is, however, something for almost every kind of geneticist, and much of the volume is essential reading for the student of continuous variation and for the practitioner of plant and animal breeding. The organisers must have been well satisfied with the success of their conference.

K. MATHER.

TEXTBOOK OF GENETICS. By Wm. Hovanitz. 1953. New York. Elsevier Press, Inc. Pp. i-ix+413. Price \$5.95.

Genetics has come to have the most elaborate theory of all sciences. Having collected his matter the writer of a text book of genetics has therefore to find out the processes of reasoning by which the matter has developed and to illustrate these processes by a coherent arrangement of the book.

Professor Hovanitz has collected all the matter that he needs, although not perhaps remembering very well where it came from. But he trips over the reasoning and the arrangement. At the beginning he attempts no clarification or definition of ideas. He distinguishes on page 1 emphatically in italics between "*breeding*" and "*experiment*". But is breeding not an experiment? On the same page he offers us the "germplasm" without any explanation, as though we all knew what that was. But does the author himself know? Introducing his chapter 16, Hovanitz reveals his own mode of reasoning. "That there must be a relation between the gene and the character follows from observation that the substitution of one allele for another results in the substitution of one character for another." But surely it does not "follow from the observation"; it merely paraphrases

the inference. It is indeed a tautology. Similarly to Hovanitz "A second cause of the failure of double cross-over classes to appear is known as *interference*" (p. 155). In this way the reader is invited to skip one of the most interesting hypotheses in the development of genetics.

Professor Hovanitz's failure to distinguish between reasoning, repetition and convention is fairly consistent. It is, we may suppose, a symptom of a general failure to know the difference between descriptive and theoretical science. In the circumstances it is unfortunate that he should choose Genetics for his subject. In other sciences a comparable effort might have yielded a less dislocated result. All that would have been noticed would have been the solecisms and malapropisms, the bibliographical errors and inconsistencies, and the mere misspellings and misprints which, beginning with the first word, splash the work with unexpected colours. The reviewer does not complain of these irregularities but rather feels relieved that the author did not take too much pains with his book.

C. D. D.