

Perhaps some examples will illustrate my complaint of oversimplification to the point of misinformation; from the glossary we learn that "phylogeny is caused by mutation and selection" and that lipids are "molecules composed, amongst other substances, of fatty acids" (what price cholesterol?). We are treated to some pretty electron micrographs of cell structure and a diagrammatic illustration of "the cell" with successive enlargements of the nucleus portraying polytene chromosomes, a step-ladder DNA helix and a deoxyribonucleotide. The reader of this book would, were he not a sceptic, come to believe that spontaneous mutations are mainly the result of cosmic radiation (p. 129), that evolution is the result of mutation (chapter 11), that development is to be explained by Haeckel's law of recapitulation (chapter 12), that vitamins (along with antibiotics and more appositely pheromones) are molecules of communication between organisms (chapter 9), and that there are three types of virus, those that multiply "only in certain bacteria", those that multiply "only in the cells of plants" and those that multiply "only in the cells of animals or human beings" (p. 165).

Despite the fact that this book cannot be recommended for any audience it is attractively produced, abundantly illustrated with relevant as well as irrelevant material, and only rarely (*e.g.* transfer RNS on p. 51) gives clues that it is a translation from the German.

M. ASHBURNER

*Department of Genetics, Cambridge*

GENETICS OF THE POTATO, *SOLANUM TUBEROSUM*. H. W. Howard. Logos Press Ltd., London. £3.

Books on potato genetics are not common, the only other recent treatments having been written by Dr Howard in 1960 and by the same author in collaboration with Dr M. S. Swaminathan in 1953. These appeared in the journal *Bibliografia Genetica*, and thus suffered from the disadvantage that they were not available to the general reader in book form. The present work is therefore to be welcomed for its availability even though this will be marred to some extent by the high price of £3 set on it by the publishers.

The two previous treatments surveyed the literature on wild as well as cultivated potatoes. The present work limits itself largely to the cultivated species, *S. tuberosum*, and mentions the wild species and the other cultivated species only in so far as the work on these relates directly to *S. tuberosum* itself. In the opinion of the reviewer this limitation seems unfortunate, since wild species have been used to a very great extent in breeding work and genetical studies, especially during the last ten years, subsequent to the publication of Dr Howard's previous review. Since the present work is a slim volume of less than 100 pages of text (excluding references and indexes) it would not have been too difficult to include work on the wild species and still provide a book of reasonable dimensions.

The amount of work of a strictly genetical nature is somewhat limited in potatoes as contrasted, for instance, with wheat, maize and barley. One reason for this has undoubtedly been tetrasomic inheritance in potatoes which renders it difficult to find linkage groups. Even though dihaploids of potatoes have been known since 1957, potato breeders and geneticists do not seem to have taken general advantage of this situation, in looking for linkage groups, but have, perhaps understandably, concentrated their efforts more

on practical breeding. Dr Howard's book shows up rather clearly the gaps in our knowledge in this respect.

The work is divided into ten chapters, of which only the final one deals with potato breeding, and that only in general terms, since the author considers breeding to be mainly outside his terms of reference. Chapter 1 gives a brief review of the history of *S. tuberosum* in South America and its introduction into Europe, with short notes on the other cultivated species. The second and third chapters deal with cytology, and fertility/sterility problems, respectively.

The genetics of anthocyanin pigmentation, morphological characters and physiological characters are reviewed in Chapters 4, 5 and 6. Surprisingly little modern work has been accomplished on the inheritance of morphological characters, and most of the references seem to date from the first three or four decades of the present century.

The inheritance of disease and pest resistance is dealt with in Chapter 7. Limitation of the references mainly to work with the cultivated potato has imposed restrictions on this chapter, particularly. Work on dihaploids is discussed in Chapter 8, most of which is concerned with their production, recognition, fertility and crossability. Some preliminary genetical investigations on linkage groups are reported but one is struck by the very small volume of work in the potato in comparison with that on its sister plant, the tomato.

Chapter 9 on chimaeras is the longest in the book, reflecting the author's great interest in this subject. Periclinal mutations are very frequent in the aberrant forms which appear from time to time in all potato varieties and Dr Howard has made a study of a number of these, with results of considerable interest. Vegetative mutations which affect physiological properties are not as spectacular as the morphological ones but are, as the author points out, of much greater practical interest to breeders.

The book is well written and produced in clear and concise form, being free from obvious printing errors. It will certainly be of value to potato breeders, geneticists and research students, but it is to be hoped that in a second edition the author will relax his self-imposed restrictions and include the results of investigations on the wild species also.

J. G. HAWKES

*Department of Botany, University of Birmingham*

OPHTHALMIC GENETICS, 2nd Edition. Arnold Sorsby. Butterworths, London, 1970. Pp. 269. £5. 10s.

Ophthalmology has the advantage that diseases of the eye are easily examined either directly or by slit lamp or by ophthalmoscopic examination. Many of the features of human genetics may be illustrated from eye conditions. Professor Sorsby has provided a brief but thorough account of what is known of their inheritance based on wide personal experience and an extensive knowledge of the literature, Continental as well as English and American.

The principle that apparently unitary conditions may be due to several different mutant genes is illustrated by the dominant and recessive forms of aniridia and the dominant, X-linked and recessive forms of retinitis pigmentosa; as is the principle that the recognition of such genetic distinctions often leads to the recognition of detailed clinical differences between the