

Book review

Adrian Gibbs and Bryan Harrison, 1976. *Plant virology: the principles*. Edward Arnold Ltd., London. X + 292 pages of text with 28 tables and 156 figures, 16 pp. of references, an index of virus names with their cryptograms (6 pp.) and a general index (8 pp.); cloth bound. Price £ 16.

Plant viruses are unique factors threatening plant growth and development and often considerably decrease crop yield and quality. Within the field of plant pathology viruses require special techniques of study. Hence, plant virology has developed into a special discipline, which has rapidly expanded since World War II, particularly with the advent of molecular biological techniques to study the viruses themselves. The molecular approach and electron microscopy of ultrathin sections have also permitted the recent differentiation between viruses and mycoplasmas and the discovery of viroids, the smallest pathogens known so far. Over 500 plant viruses have been described already and new ones are continuously being reported.

The authors, both 'introduced to the enjoyment of work with viruses by the late Sir Frederick Bawden', and well known for their many contributions to plant virology, have now written an 'introduction' to this field.

They have done so in 17 chapters, starting with the history and scope of plant virology (1) and a preliminary survey of the main types of plant viruses and their names (2). Then the effects of viruses on plants (3) and experimental transmission (4) are outlined. Two chapters deal with the composition and structure of the virus particles (5) and the purification of virus particles and some properties of purified preparations (6). Assay by infectivity tests (7), serology (8) and physico-chemical methods including electron microscopy (9) are then analysed. Next come the effects of inactivators on virus-particles (10) (a title which does not seem appropriate, because persistence of infectivity after dilution, ageing and heating are also dealt with, and virus behaviour in plants (11). Variation, strains and virus classification (12) are discussed in another chapter. The next three chapters return to field aspects in discussing transmission by vectors and other natural methods (13), virus ecology (14), and ways of preventing crop losses (15). Finally, some general information is presented on viruses of organisms other than higher plants and on origins of viruses (16) and on plant pathogens confused with viruses such as mycoplasmas and rickettsia-like organisms (17). There is also an appendix referring to general texts, journals, reviews etc., to reviews on special topics, listed under the chapter to which they are relevant, and to additional information on the use of viruses for class exercises.

Because of rapid developments in plant virology there is an increasing tendency towards specialization, but the authors have succeeded in covering the entire field. They are to be commended for having done so most skillfully and appealingly, making the book pleasant to read.

The book provides much valuable information with good coverage of literature, although there is little reference to non-English publications. I found remarkably few mistakes and the illustrations have been carefully selected and well reproduced. The arrangement of chapters may be debatable. For example, a discussion of composition and structure of virus particles would seem more logical to me after having outlined purification (6) infectivity assay (7) serology (8) and physico-chemical assay (9). Also, the chapter on some plant viruses and their names (2) contains much information which would have fitted better in the chapter on classification (12). Obviously, Chapter 2 is meant to extend the introductory chapter and could have been condensed and included as a section in Chapter 1.

Finally, the book is more detailed than is needed for a textbook or general introduction for students and beginners. According to Gibbs and Harrison 'other volumes are either more specialized or more detailed than seems necessary for a grounding on the subject'. The authors now hoped to fill a gap, but this criticism pertains to their own book. Although printed on less than 3/8th of the number of pages of Matthews' 'Plant Virology' (Acad. Press, clothbound 1970 \$ 41.00 or £ 22.55; student edition 1976: \$ 19.50 or £ 9.75), it contains about 5/8th of the number of words and it costs much more than Matthews' student edition. However, the book certainly belongs on the desk of each plant virologist or (molecular) biologist dealing with plant viruses.

L. Bos