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As a professional plant pathologist, the reviewer himself has been an avid and regular reader of this review series and has all the volumes in his own library. This series has been popular with plant pathologists all over the world because of its wide coverage of topics, ranging from historical to those covering the cutting edges of the science of plant pathology. Many topics chosen are of international interest. Volume 32 once again follows the rich tradition.

The volume has 30 review topics classified into 13 groups: Prefatory chapter; Pioneer leaders; Diagnosis and appraisal of plant disease; Pathogens: Fungi; Pathogens: Bacteria; Pathogens: Nematodes; Pathogens: Viruses; Physiology, morphology, anatomy, biochemistry and molecular biology of host-pathogen interactions; Epidemiology and influence of climate; Toxicants and chemical control; Biological and culture control; and Special topics.

The first two groups – Prefatory chapter and Pioneer leaders – relate to historical aspects. There is only one article under the first group written by Dr George A. Zentmeyer about his own 55-year innings as a professional pathologist. It is very readable and particularly useful to young plant pathologists, who could learn from the varied, exciting experiences narrated by the author. The second group has three articles on

three pioneers in the field of plant pathology – Harry Marshall Ward, Tom Goodey and Frederick Charles Bawden – all from the United Kingdom, whose work has had tremendous impact internationally. There is an interesting account of how the rust disease of coffee wiped out the crop from Sri Lanka and was replaced by tea towards the end of the last century, despite efforts by experts like Harry Marshall Ward. Tom Goodey is today considered the father of nematology in Britain. Bawden's contribution to the field of virology in 1930s has been a landmark; he and his colleague Pirie provided for the first time evidence that viruses are nucleoproteins. All the three articles make very interesting reading.

The third group, Diagnosis and appraisal of plant disease, contains three articles. The first one deals with ash (*Fraxinus* spp.) yellows disease, the second with dogwood (*Cornus* spp.) anthracnose, and the third with the so-called beech (*Fagus* spp.) bark disease. The three articles will be of interest mostly to the scientists of North America and possibly Europe and other temperate regions.

The next four groups cover topics related to fungi, bacteria, nematodes and viruses as pathogens. There is a very interesting review on the presence of double-standard ribonucleic acids (dsRNA) in the rust fungi. The presence of dsRNA seems to be a normal feature of most rust fungi even though these fungi continue to be damaging pathogens of crop plants. In the next few years the role of dsRNA in the pathogenicity of rust fungi should become clear. Another article describes the molecular biology approach that might help in improving our taxonomic understanding of *Rhizoctonia*. There is an excellent review on our status of knowledge regarding the secretion of extracellular virulence factors by phytopathogenic bacteria. Another review worth reading is the one by Sijmons *et al.* highlighting the recent advances made in the areas of parasitic strategies and host cell responses. Again, modern molecular biology techniques have helped and will further help in improving our under

standing of the host–root nematode interactions. Modern molecular biology techniques have contributed in rapidly improving our understanding of plant viruses. There is an interesting review on the evolution of closteroviruses, which are known for having by far the largest positive-strand RNA genomes among RNA viruses of plants. Another excellent review covers the topic of plant viral RNA synthesis in cell-free systems. Though our knowledge of initial stages of virus multiplication in plant hosts has increased substantially in the last two decades, it is far from being complete. Another review discusses our recently gained knowledge of RNA–RNA recombinations and evolution in virus-infected plants. Seed transmission of viruses concerns plant pathologists all over the world and this volume has an excellent review discussing the work mainly done in the last 25 years. Another review covers our knowledge of the role of plasmodesmata in viral transport in plants. Though annual reviews are normally edited very well, it is difficult to understand how the editors made the mistake of including the review on the molecular systemics and population biology of *Rhizoctonia*, a fungus, in the group of articles on bacteria.

In the remaining groups of reviews, the readers will find articles dealing with topics like (i) early events in the activation of plant defence response, (ii) social and political implications of managing plant diseases with decreased availability of fungicides in the USA and Europe, and (iii) the role of plant clinics in disease diagnosis and education in North America.

The volume includes a thoroughly prepared subject index. The reviewer is once again convinced about the outstanding service that the volumes of the *Annual Review of Phytopathology* provide to plant pathologists of the world.

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