

## Phytopathology

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### BOOK REVIEWS

Paul Sorauer, *Handbuch der Pflanzenkrankheiten*. Fifth edition. Volume III. Die pflanzlichen Parasiten. Pp. VIII + 948. Paul Parey, Berlin, 1932. Bound, 66 Reichsmarks.

The second volume of Sorauer's manual, which dealt with plant diseases due to bacteria, to slime molds, to phycomycetes, and to ascomycetes, made its appearance in 1928. In the present volume, one of the largest to be issued in this or in any previous edition of the set, are treated the diseases of living plants and the damage to plant products attributable to destructive forms among the basidiomycetes, the fungi imperfecti, the algae, the lichens, and the seed plants. The unexpectedly long lapse of four years between the dates of publication of the two parts concerned with parasites and epiphytes belonging to the plant kingdom is explained in a preface by Appel, one of the editors, as being due mainly to an increasing realization of the need for a complete revision of the earlier edition. Moreover, the deaths of Noack and Hosterman made necessary the appointment of four new collaborators to work up the important section devoted to the fungi imperfecti.

The present volume contains no section corresponding to the chapter on the control and prevention of plant diseases due to fungi that took up 34 of the 310 pages in the corresponding volume of the fourth edition; the matter covered therein evidently being reserved for expanded treatment in a separate volume dealing with plant protection announced forthcoming by the publishers as the sixth and concluding unit in the set. Yet, in spite of this diminished scope, the book under review contains more than three times as many pages as its predecessor of 1923. The more extensive treatment has effected an immense improvement in the utility of every section. The expansion of the section on the rusts from 59 to 132 pages has enabled Köhler to give due attention to the important discoveries on the biology of these parasites made during the last two decades, in large part in the United States and Canada. The section on the Ustilaginales consisting of 147 pages contributed by Zillig, sets forth our knowledge of the smuts with a completeness not approximated in his earlier account of 39 pages. Laubert's treatment of the Exobasidiineae, in 15 pages, is incomparably more instructive than Lindau's earlier 2-page summary. Likewise, the section of 107 pages on the Hymenomycetinae, written by Münch, deals with the pathology of living trees and the biology of timber decay with a fullness impossible in the 17 pages of text contributed earlier by Lindau, much of which necessarily had to be devoted to taxonomic discussion. The 87 pages of the chapter on the Sphaeropsidales by Laubert and Richter have not only

permitted these authors a much fuller textual treatment than was afforded by the 22 pages in the corresponding section of the previous edition, but enabled them to include 31 figures in place of a single figure. Pape's account of diseases due to members of the Melanconiales occupies 83 pages and contains 16 illustrations, in comparison with 25 pages and 3 illustrations devoted to the analogous section of earlier date.

Nowhere has the expanded treatment resulted in more evident improvement than in the difficult section on the Hyphomycetes contributed by Wollenweber. Here, 253 pages, in which the uniformly admirable text is illustrated with 18 figures, replace 57 pages containing 3 figures. Much of the increase is apportioned to several genera whose status in plant pathology has been made much better known in recent times; among which may be cited *Botrytis*, *Alternaria*, *Cercospora*, *Graphium*, *Verticillium* and *Helminthosporium*. The lion's share of the increase, however, went to the chapter on *Fusarium*, to which is devoted a total of 87 pages, or 65 pages more than in the previous edition—an expansion to be accounted for in part, no doubt, by the predilection of the author. That this chapter constitutes virtually a monograph within the more general compendium will make the volume no less attractive to the numerous workers dealing with members of the genus to whom the same author's more extended account may be inaccessible.

A section of 13 pages on parasitic algae deals with a field of phytopathological interest too often ignored in American textbooks. Perhaps the citation here of several substantial papers on *Cephaleuros* and *Rhodochytrium* by American investigators may direct increased attention to the occurrence of algal plant parasites in the United States. A chapter of 10 pages from the pen of Pape disposes of the curious damage to plants due to lichens. The final chapter in the book, written by Köhler, and consisting of 32 well-illustrated pages, deals competently with the more familiar, yet far from commonplace, injuries attributable to parasitic seed plants.

The volume is concluded with an index occupying 50 pages of 3 columns each. Host plants as well as parasites and injurious epiphytes are listed both by their genera and by their common names in German. Diseases are listed mostly by their German designations, but often also by English terms when these have been widely used in the literature. In addition, numerous items are included having reference to discussions on the pathological, morphological, physiological, or biological aspects of particular diseases or of categories of diseases affecting either particular host plants or groups of host plants. References to the literature are given, as in previous editions, in footnotes and in such quantity that if they were assembled they would, in spite of the small type employed for them, fill more than 100 full pages. In thoroughness and documentation the present volume far outstrips not

only the corresponding part of any previous edition but also the companion volume of the same edition; or, for that matter, any compendium whatever covering the same ground. I anticipate there will be little occasion for such expressions of disappointment as were vented by some reviewers of Volume II, when they found omitted all mention of what naturally looms highest to investigators generally—their own individual contributions.

In view of the difficulty of avoiding a catalogue-like style in compositions dealing with innumerable items, the several authors have shown more than ordinary resourcefulness in making the text coherent and readable. The book seems in an unusual degree free from errors in statement, though minor departures from accuracy occur here and there. On page 677, for example, it is stated that knowledge concerning the very inclusive host range of *Helminthosporium giganteum* came to light through “*weiteren Beobachtungen und erfolgreichen Infektionsversuchen*” of mine. In the papers cited in connection with this statement, however, only infections that had come about spontaneously in the field were considered; and certainly no infection experiments of any kind were attempted with the fungus.

The more extended treatment has permitted the inclusion of many illustrations from comparatively recent publications to supplement the older figures hallowed by tradition. The half-tones among these newly introduced illustrations seem of exceptional merit. Some of the zinc cuts, however, lead one to suspect that the hand of the transcribing draughtsman was heavier than it was cunning. Perhaps that hand might have been employed to better effect in wielding scissors and paste-brush since nearly all of the figures in question were coarse enough as published originally to have permitted the necessary reduction in size to be accomplished by direct photographic methods. The depressing character of some other illustrations is hardly to be traced to maladroit transcription, but rather to their failure in the first place to represent properly the morphological features of the fungi they purport to represent. Of the figures assembled on page 835, only two are drawn well enough so that the direction of rotation in the individual sporiferous hyphae can be distinguished. In these two figures both sinistrorse and dextrorse conditions are shown, though the legends indicate that a dextrorse species was concerned in each case. It is undoubtedly in large part through illustrations of such quality that the lingering faith in the transitional position of *Actinomyces* between the bacteria and the fungi, which is reaffirmed in the unhappy sentence opening the special chapter devoted to that genus, is sustained.—CHARLES DRECHSLER, United States Department of Agriculture, Washington, D. C.