which takes them as directly as possible to the field of their special chemical interests.

E. U. CONDON

PRINCETON UNIVERSITY

FUNGI

British Stem- and Leaf-Fungi (Coelomycetes). A Contribution to our Knowledge of the Fungi Imperfecti Belonging to the Sphaeropsidales and Melanconiales. Volume 1. Sphaeropsidales, to the end of the Sphaerioideae which have Colourless or Nearly Colourless Spores. By W. B. GROVE. xx + 488 pp. 31 text figures. Cambridge, England, at the University Press; New York, the Macmillan Company, 1935; $7.00.

AMERICAN mycologists who have used "British Rust Fungi," published by this author more than twenty years ago, will welcome the appearance of this new book. Though dealing with a different group of parasitic fungi, it resembles its predecessor in the view-point revealed, in method of presentation and in general appearance. Written to serve as a handbook in the British Isles, it will find a much wider field of usefulness, due to the extensive range of many of these organisms. It is to be followed by a companion volume which will cover the remainder of the Sphaeropsidales and Melanconiales. The Hyphomycetes will not be incorporated. The book is clearly printed on a good grade of paper and is attractively bound. It is inadequately illustrated, the few text-figures provided adding little to its usefulness. Good indices to host plants and to genera and species of fungi are given. Also there are included Latin diagnoses of twenty-four species described as new.

The author follows M. C. Cooke in the use of the old-fashioned and somewhat misleading name Coelomycetes. The older writer in his "Handbook of British Fungi," which appeared in 1871, discussed 200 species of these fungi. An indication of the tremendous increase in knowledge of the group is given by the statement of Grove that there are now 2,000 reputed British species. He calls attention to the economic significance of these fungi as "despoilers of our field crops, our orchards, and our woods," and emphasizes the fact that many fungi are actively parasitic only in their imperfect stage. The book is written, however, more from the standpoint of the mycologist than the plant pathologist. The descriptions of species stress morphological rather than pathological or cultural features.

Fifty genera are covered in this volume. Under each, the British species are arranged in definite sequence by host genera. Unfortunately, the host genera are listed alphabetically rather than systematically. This brings together the species occurring on species of a given host genus, but fails to place in proximity those to be found on related hosts. Each species is described briefly, and data covering host range, season of fruiting and distribution are incorporated. Relatively less space than usual is used in citation of exsiccati and other herbarium material examined. The author has been collecting these fungi for many years, and his personal collection of over 3,000 specimens has served as a basis for his work. In addition he has made the necessary comparisons with authentic materials in various historical herbaria. The book has the stamp, however, of having been written by a field mycologist rather than a herbarium worker. It fills a long-felt need for a handy reference work on these fungi.

H. M. FITZPATRICK

CORNELL UNIVERSITY

SPECIAL ARTICLES

BREEDING RUST-RESISTANT SPRING WHEATS

CALAMITOUS epidemics of stem rust occurred in 1904 and 1916 and again in 1935. Urediospores, overwintering in Texas, found optimum conditions for increase in their progress from south to north and finally the full force of the impact of the parasite fell upon the spring wheat fields of South Dakota, Minnesota and North Dakota. The loss in North Dakota alone, due mainly to rust, approached 100 million dollars. Before and following the epidemic of 1916 it was thought that catastrophes of this sort could be combatted by two methods, (1) the eradication of the common barberry, alternate host of *Puccinia graminis*, and (2) by breeding varieties of the other host, the wheat plant, which would be resistant to the parasite. After the 1935 epidemic, we know that breeding must be a major recourse.

Twenty years ago no variety of common wheat (*Triticum vulgare*) was known to have resistance to stem rust. The writers[1] discovered in 1917, in a durum introduction from Russia, plants of common wheat somewhat resistant to stem rust, which they selected and named Kota. Waldron crossed Kota wheat with Marquis, producing the Ceres variety, which has since become the principal hard spring wheat grown in the United States. Both the Kota parent and Ceres possess only moderate resistance to stem rust. While Ceres successfully withstood ordinary epidemics, it

[1] L. R. Waldron and J. A. Clark, *Jour. Amer. Soc. Agron.*, 11: 187, 1919.