

## Mycology: a successor to Cochrane

John D. Weete

*Fungal Physiology*. By David H. Griffin. Pp.383. ISBN 0-471-05748-7. (Wiley: 1981.) £25.45, \$43.25.

DURING the past few years several excellent, advanced-level monographs have appeared on aspects of the biochemistry and physiology of fungi, reflecting some 20 years of continual advance in our understanding of these subjects. Yet there has been no successor to Cochrane's general introductory text, *Physiology of Fungi*, published by John Wiley in 1958, and long out of date. Professor Griffin has now provided such a text with *Fungal Physiology*. His coverage emphasizes those physiological processes typically associated with fungi, and stresses the experimental rather than historical aspects of the subject.

The opening three chapters, reviewing the fungal thallus, and the chemical composition and structural organization of fungus cells, are followed by an outline of the major processes occurring within fungal cells. On balance I believe more emphasis could have been given in this latter chapter to metabolism and the treatment strengthened by greater coverage of the relationships between metabolic change, growth and reproduction. The author then turns to various aspects of vegetative growth, and in the next three chapters considers the uptake of nutrients, the chemical requirements for growth and the relation of the physical environment to growth. Chapters 9 to 12 deal with sporogenesis (environmental factors, biochemistry), dormancy and germination, and the role of hormones in sexual reproduction. Here, Professor Griffin has chosen *Dictyostelium discoideum* rather than a yeast or filamentous fungus to illustrate the biochemistry of spore formation. He provides ample evidence indicating that fungi of different classes seem to have developed different hormonal systems for regulating sexual reproduction. The chapter on syngamy (Chapter 12) is organized on the basis of fungal groups and the specific hormones associated with each group are discussed.

Understanding specific biochemical processes can be aided by the use of inhibitors; in this context, inclusion of a chapter devoted to fungicides is noteworthy because of the significance of many of these compounds in the agrochemical and biomedical fields as chemical agents for controlling pathogenic fungi. The final chapter, "Fungal Attack Mechanisms", is concerned with fungal toxins, exoenzymes, fungal responses to environmental stimuli and fungal interactions (non-pathogenic) with other living systems. Fungal genetics *per se* is not covered, but genetic studies are discussed where they are relevant to other topics, particularly fungal symbiotic

relationships. The importance of using mutants in mycological research is implied by the citation of examples throughout the book.

The book is well organized; each chapter begins with an introductory statement which puts the subject under consideration into perspective, ends with a brief summary, and is appropriately referenced. Topic discussions are well illustrated with light and electron micrographs, tables and, where pertinent, graphs and chemical structures. *Fungal Physiology* is suitable as a text for a general course serving advanced undergraduate and graduate students, and also provides a handy reference work for researchers seeking general background information. The appearance of this book is both significant and timely; I highly recommend it. □

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## View of laser fusion

David W. Forslund

*Physics of Laser Driven Plasmas*. By Heinrich Hora. Pp.317. ISBN 0-471-078880-8. (Wiley: 1981.) £28.95, \$49.15.

THE field of laser fusion and the physics of laser driven plasmas has developed rapidly in the past decade and it has proven difficult for research workers to keep up with progress. Particularly lacking have been good reviews and good textbooks which would help introduce new people to this extremely complex subject. In this recent attempt to meet such a need, Professor Hora has sought to derive the basic physics of the interaction of intense laser light with matter from first principles. He attempts to lead the reader through the derivation of the fundamental plasma physics, kinetic theory, hydrodynamics and an expression for the nonlinear force arising from intense laser light, and follows this with discussion of the numerous applications of the nonlinear force from its role in parametric instabilities to its use in the implosion of pellets.

The book suffers from a number of flaws, however, which prevent it from being useful either to the student or as a handbook for the research worker. First, the discussions of most of the phenomena are unduly complex, confused and full of errors, making the text extremely difficult to read. As a typical example, the derivation of the plasma frequency and Debye length on pages 22-25 introduces

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