Yeasts (review)*—Within the last few years yeasts have become the object of chemical and biological research, much of it fundamental. It is perhaps surprising in view of the importance of yeasts in the practices of brewing and bread-making that specialist attention has not been directed towards the group until recently. Yeasts have been studied by workers in several different fields, and a wealth of information has been accumulated on taxonomical, cytological, genetical, and technological aspects. Until the publication of this authoritative and comprehensive work, no major attempt has been made to collate these many and varied aspects in a single volume. This book gives an up-to-date account of biological, chemical, and technological aspects of the yeasts. Individual chapters are written by one or more recognised authorities, and although necessarily differing in approach and presentation, each is complete in itself. In every chapter the development of the subject is outlined and the limits and significance of present-day knowledge indicated. The keynote of the book is its comprehensive nature, and it would be difficult to imagine a more convenient referendum for workers in this group. More than 2500 references are listed in the thirteen chapters. In a work of this nature it is inevitable that a certain amount of repetition or overlap occurs, but this has been reduced to a minimum without losing either the comprehensive nature of a particular chapter or the continuity of the work as a whole. The opening chapters of the book deal with yeast taxonomy, ecology, life-histories and cytology, and genetics. Succeeding chapters deal with yeast chemical composition, growth, fermentation and respiration, carbohydrate and nitrogen metabolism. Special chapters are also devoted to the technology of yeast, pathogenic yeasts, yeasts in food spoilage, and yeast flocculation.

This work, by careful integration of subject matters is more than a series of isolated reviews, and represents an important contribution to the appreciation and understanding of the group as a whole.

DONALD W. R. MACKENZIE.

Another Toadstool Flora (review)†—In the two volumes under review Professor Heim has written an account of the European flora of larger fungi to stimulate interest rather than produce a technical systematic treatment. It is his intention to continue the series to deal with other regions of the world. Volume one includes a general review of the morphology and biology of the agarics, boletes, polypores and larger ascomycetes. Their phylogeny, ecology, microscopic characters, odours, toxicology, wood destroying properties, parasitism and mycorrhizal relations are dealt with in turn. The text is well illustrated with figures and a score of excellent photographs. Chapter eight is devoted to the

* The Chemistry and Biology of Yeasts, edited by A. H. Cook. New York, Academic Press. 1958. Pp. xii + 763. Price $22.00.

† Les Champignons d'Europe, by R. Heim. Paris, Boubee & Cie. 1957. Vol. I, pp. 295, illus. 24 plates. Vol. II, pp. 521, 51 plates. Price 7,500 Francs.

cultivation and cooking of fungi—with appropriate recipes. Thereafter begins the descriptive part of the work which deals in the first volume with the *Ascomycetes* and continues in the second with the toadstools proper. Professor Heim departs from the usual form of a flora in dispensing with keys and formal descriptions—holding, as he does, that keys are often traps for the unwary. Instead he provides keys to genera and, in larger genera, conspectus keys to sections. The author's rather discursive text which brings out only the distinctive "spot" characters of species will appeal strongly to the amateur or beginner in agaricology, but may surely lead to as incorrect use of names as any keys. For the beginner the good text illustrations will prove helpful. Most of the fifty-six colour plates are adequate but the "realistic" backgrounds would surely have been well sacrificed to allow for the inclusion of more species.

Throughout the work the author has discarded the use of authorities for Latin names. How then is the amateur to equate Professor Heim's account with the many interpretations of agaric species already current? Surely this difficulty could have been overcome by equating the names with Kühner & Romagnesi's flora except where otherwise stated. Similarly, Professor Heim, having pleaded for simplification, should surely not have included in this flora proposals of new taxa—subgenus *Constricta* of Tricholoma and the genera *Hodophilus* and *Hygrophana*—all without latin diagnoses.

The volumes are well but not extravagantly produced so that the price is prohibitive for any but the wealthy amateur or exceptionally well financed library.

D. M. HENDERSON

Smut Fungi (review)*—In fields of interest common to agriculturalists, plant pathologists, university teachers and students, it is becoming increasingly necessary to have authoritative compilations for the non-specialist to obtain anything approaching a balanced introduction to the subject.

This work reviews in detail the vast literature on the biology and control of the smut fungi. Perhaps the most welcome feature is the very happy balance struck between accounts of classical morphological research and taxonomy, and the most recent work on experimental genetics and cytology of these organisms. The breeding of resistent varieties and other control measures are fully reviewed. The need for further research in the group is emphasized in the text and the techniques required are outlined in a useful chapter on cultural and cytological methods. The very comprehensive bibliography, while emphasizing the wide sphere from which the authors have culled their information, by its admirably clear arrangement, exemplifies the very high standard of production of the volume, which must surely add to the authors' already well deserved fame in the field of research on the smut fungi.

D. M. HENDERSON

* Biology and Control of the Smut Fungi, by G. W. Fischer and C. S. Holton. New York, Ronald Press Company. 1957. Pp. x + 622, illus. Price 10 dollars.