

the Uredineae. A summary of each chapter at the end of the book gives the hurried reader a chance to grasp the main features of the work. The book is dedicated to the long and favorably known English mycologist, William P. Grove. Space does not permit a detailed outline of the work, but some general idea of the fungi dealt with can be seen by the following short summary.

The Psathyrella sub-type of mushrooms is illustrated chiefly by *Lepiota cepaestipes* which takes twenty-two pages of descriptive matter, while *Lepiota procera* occupies six more of the first chapter, and *Psathyrella disseminata* takes up the second chapter of thirty-one pages. Chapter III deals with the Bolbitius sub-type, chiefly *B. flavidus*, and a comparison with the fruiting body of the genus *Coprinus*. The IV chapter treats, in more or less detail, with *Armillaria mellea*, *Marasmius oreades*, *Amanita rubescens*, *Amanitopsis vaginata*, *Collybia* sps. (chiefly *C. radicata*), *Pluteus cervinus* and *Nolanea pascua*. Chapter V is short, dealing with another sub-type illustrated by *Inocybe*. Chapters VI to XI, comprising two hundred and thirty-nine pages, treat of the *Coprinus* like fungi of which details are given of *Psathyra urticaecola*, *Coprinus plicatilis*, *C. comatus*, *C. sterquilinus* (treated in detail), *C. atramentarius*, *C. stercorarius*, *C. picaceus*, *C. lagopus* and *C. micaceus*.

The remaining chapters of this first part deal with the toadstools from a different point of view. For example, chapter XII treats of bioluminescence, giving detailed observations made on *Panus stypticus* form *luminescens*, found in North America, the European representative of this species apparently being non-luminous. A list of eighteen luminescent mushrooms is given and short notes are included on other fungi, bacteria and animals in which this phenomenon has been observed. Chapter XIII deals with fungi parasitic on other fungi, details being given of those agarics found on other agaric species. The final chapter treats of the nocturnal spore discharge of species of *Pleurotus* and a method of detecting it by an electric hand-lamp.

Part II of the book is comparatively short, dealing with the Uredineae in three chapters. The first of these considers the phenomena of spore discharge as illustrated by species of *Puccinia*, *Endophyllum* and *Gymnosporangium*. Chapter II discusses the teleutospore and the curvature of its basidium in relation to the dispersal of the basidiospores, illustrated chiefly by the germination of *Puccinia malvacearum*. Chapter III concludes the work with a discussion of spore walls and the dispersal of spores by water and wind.

While on the whole these books of Buller's are of chief value to the mycologist, there is much of interest to the general student of nature. Manitoba seems

very remote even to an American, yet when an English trained botanist makes it his home and turns out such stimulating and exact work, we realize more fully than ever that the man, rather than the environment, counts most.

G. P. C.

*Tales of Fishing in Virgin Seas.* By ZANE GREY, author of *Tales of Fishes*, etc., etc. Harper & Brothers, New York.

ZANE GREY'S "Tales of Fishing in Virgin Seas" is an angler's book de luxe. It is elegantly printed on fine paper in large clear type, with a hundred illustrations, handsome and instructive. It describes in detail a three months' cruise of a three-masted schooner from Nova Scotia, answering to the name of *Fisherman* (née Marshal Foch). The angling described was all for giant fish of the open sea, especially sword-fish, sail-fish, marlins, tunnies and albacores. Incidentally also were taken groupers (garrupa), barracudas, onos (*Acanthocybium*) papagallos (*Nematistius*) Cavalla (*Caranx*), and others of less note and size.

To the ichthyologist the book is welcome as it gives records of these giants in waters which had never been fished before. Of a new species of sail-fish or volador, described by the writer in a paper now in press, a hundred or more were caught by Mr. Grey and his associates, and several excellent photographs are presented. Useful accounts are given of the ways of several of the marlins ("Marlin spike-fish") and of the yellow finned tunnies. A black marlin similar to others of Hawaii and Japan (*Makaira mazara*) was obtained off Guerrero in Mexico, and a good photograph given. Some other species may be new to science, but without good photographs one can not be sure. It is from photographs only that we can define most of these species, as mounted examples and casts must remain rare, and a black marlin of half a ton or more, or even a sword-fish of half that size, does not rest comfortably in a bottle.

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## SCIENTIFIC APPARATUS AND LABORATORY METHODS

### OIL-WATER MODELS ILLUSTRATING SUR- FACE FORCES AND FILMS IN BIOLOGICAL PHENOMENA

THE following models have been found useful as demonstration experiments in connection with the courses in pharmacology in this laboratory. They simulate the phenomena of Brownian motion, ameboid motion, pseudopod formation, contractility, cytolysis, chromatolysis, phagocytosis, anesthesia and selective swelling. The phenomena of adsorption, diffusion,