

as similar to those of schizophrenia; and yet also notes elsewhere that amphetamine in large doses will produce the same symptoms. One is therefore somewhat suspicious of Dr. Oswald's repeated suggestion that an inefficiency in behaviour is an indication of incipient sleep.

An engaging feature of the book is the author's willingness to state bluntly his own views on matters which are in dispute. In some such cases he is, from my point of view, on the side of the angels: for example, in questioning the suggestion by Dement that deprivation of dreams rather than deprivation of sleep produces disturbances of behaviour. Another example is Dr. Oswald's opposition to the suggestion of Malmo and Surwillo that deprivation of sleep produces a state of increased arousal. Nevertheless, and no matter how much one agrees with Dr. Oswald, there are a few cases where one feels that the other side of the controversy might have had a little more representation.

In summary therefore, this is an excellent review of the phenomena of sleep and at least a stimulating introduction to those of returning consciousness. It is written with attack and confidence, and liberally illustrated with incidents and cases known to the author. While it has the defects of its good qualities, it is bound to command the field for years to come.

D. E. BROADBENT

MYCOLOGY FROM AN UNUSUAL ANGLE

Fungal Genetics.

By Dr. J. R. S. Fincham and Dr. P. R. Day. (Botanical Monographs, Vol. 4.) Pp. x+300. (Oxford: Blackwell Scientific Publications, 1963.) 50s. net.

THE present appalling dichotomy in biology, and particularly in the way it is taught and investigated in Britain, comes to mind at once in reading this useful book. On one hand there is 'classical' biology, with its sub-divisions either as to groups of organisms—botany, zoology, microbiology—or as to form and function: comparative anatomy, comparative physiology, ecology, ethology and evolution. On the other hand, there are the recent approaches represented by genetics, molecular biology, cell biology and cellular biochemistry. These have produced in the past twenty-five years a revolution at least as illuminating and far-reaching as that of the nineteenth century linked to Darwin's name.

Some of the practitioners of classical biology ignore, fear, affect contempt for, or, at best, pay lip service to the new ideas and techniques instead of being glad to absorb them in their own daily way of thinking and working. So far the chasm can still be bridged, because the older practitioners of the new biology, by virtue of age and training, have their roots in classical biology: their aim is still that of looking at the same problems in a new light. But the coming generation of molecular biologists, biochemical geneticists and cell biologists may not have any roots at all. If the dichotomy is allowed to go on we shall have two kinds of biologists: those who label migratory birds and those who label ribonucleic acids, neither knowing of the other, and each considering himself as the 'true' biologist.

In this respect, the book under review has a very refreshing quality. Though the authors state that their own research work "has not been instigated primarily by an interest in fungi for their own sake", in fact, out of a total of eleven chapters, at least three—one, introductory, on the biology of those fungi on which genetic research has been substantial, one on sexual development and one on pathogenicity—do reveal such interest, which also appears sporadically throughout. In other words, this is a book in which the dichotomy is not apparent. Since it is a very readable and good account of fungal genetics, which is, after all, an aspect of the biology of

fungi, every mycologist should read it and assimilate it. For the geneticist—microbial or macrobial—it will be an indispensable reference book. The authors have made a real and successful effort not to limit their account to their own research interests, important as they are. There could perhaps be a little more about yeasts, but the mixed nature of the literature in this field makes the task very difficult.

The genetics of fungi has contributed decisively to some of the basic problems of genetics: recombination, complementation and alternatives to sex. The parts of the book dealing with these problems make stimulating reading. In addition, the detailed treatment of tetrad analysis is a useful teaching tool. There is throughout the crop of misprints which has become a familiar feature of present printing standards. There are also here and there a few minor factual mistakes and wrong or omitted references: these are minor flaws. The authors can be congratulated on having filled a gap very well.

G. PONTECORVO

BETWEEN THE TIDE-MARKS

British Seaweeds

(The Kew Series). By Carola I. Dickinson. Pp. 232+12 plates. (London: Eyre and Spottiswoode, 1963.) 25s.

DURING the nineteenth century when scrap-books, often very beautiful in character, occupied the leisure hours of ladies of fashion, a number of popular books were written, illustrating and describing the commoner seaweeds of British coasts. With the passage of time and life's increased pace these books have ceased to be available and they have not hitherto been replaced. Large numbers of people spend holidays near the shore, but comparatively few of them are aware of the fascinating occupants, both plant and animal, of the area between the tide-marks; modern books, with rare notable exceptions, mostly biological, have not been designed to help them. It is particularly appropriate therefore that Miss Dickinson's book should have been published just now when a determined effort is being made by both national and local bodies to revive the general interest in natural history.

The book is of convenient size and is illustrated by twelve colour plates, mostly of outstanding merit. There are also 92 text figures which vary very much in quality, some, such as those illustrating the species of *Laminaria*, being very beautiful, though others are much less pleasing.

Following a short introduction, the author gives a short account of the structure of seaweeds, their reproduction and their life-cycles. Brief sections follow on environment, collecting and mounting specimens and on the uses of seaweeds. A key to genera precedes an account of some 150 of the commoner British species. The descriptions of the species are written in a semi-popular style so that they can be used by an amateur and a glossary helps to elucidate the terminology. The book is indexed and there is a brief bibliography.

The problem of writing for the layman on such an unfamiliar subject must be recognized, and the author has obviously striven to make the descriptions both lucid and interesting. It is a pity, nevertheless, that in the introduction, words like 'rhizome' and 'stolon' are used without qualification. One hopes that some amateurs will be fired with sufficient enthusiasm to become formal students, so it is a pity to teach them to use words that are only applicable strictly to higher plants. In the same section a statement occurs that "holdfast indicates the sole function of this organ". That is certainly not true, for it may also be an organ of perennation and regeneration in both brown and red algae. These, however, are small points, and the book as a whole is a welcome addition to a series which is making a great deal of valuable material available to British naturalists, in a most attractive form.

LILY NEWTON