

on spontaneous mutations to phage resistance, Demerec's work on penicillin-resistant mutants), which are not discussed.

An important chapter deals with the subject of cell division. Interesting data and interpretations are presented there, which tend to emphasize the relative independence of 'growth mechanisms' and 'division mechanism'. It is shown that, in some cases at least, each may be subject to very specific influences. This distinction undoubtedly is of great theoretical and practical importance, although it is too often overlooked.

The book ends with 'concluding observations' of a far-reaching generality, on the essential characteristics of living matter, and the possibility of understanding its origin and evolution in terms of physical forces and relations. The view is optimistic, although prudent, and it is pointed out that even the dualism of the mental and physical world may in time appear as a functional relation, the nature of which would not be very much more difficult to grasp than the relation between wave and particle, energy and matter.

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¹ cf. Spiegelman, *Ann. Missouri Bot. Garden*, **32**, 139 (1945).

² *Ann. Inst. Pasteur*, **67**, 94 (1942).

³ *Genetics*, **28**, 491 (1943).

⁴ *Genetics*, **30**, 119 (1945).

⁵ *Proc. U.S. Nat. Acad. Sci.*, **31**, 16 (1945).

BRITISH FOREST TREES

Our Forests

By W. H. Rowe. Pp. 173+34 plates. (London: Faber and Faber, Ltd., 1947.) 12s. 6d. net.

THIS is the second book covering the general subject of British forestry for the non-technical reader published since the end of the War ("Forests and Forestry", by W. L. Taylor, the recently appointed director-general of forestry, being the other), and during the same period, Edlin's book on "British Woodland Trees" has also appeared. This is a very healthy sign of an increasing interest in the woodlands of Great Britain and their place in both rural and national economy. All three books are well illustrated, and Mr. Rowe has made an excellent choice of subjects. The frontispiece, taken in a New Forest roadside plantation well known to foresters, provides an ample refutation of the charge that a coniferous crop need be an eyesore, while Figs. 5 and 6 of neglected larch woods show how one may become so; the dark thicket stage shown in Figs. 21 and 22 is after all a relatively short one. It may be claimed that the bad beech of Fig. 7 has a certain attractiveness of its own, but does it surpass that of the good beech of Fig. 8 alongside? Several of the photographs reveal what excellent growth is obtainable in Britain with a number of kinds of timber tree.

The author, already known from the useful Penguin on "Trees and Shrubs", sees forestry from the private owner's point of view, but evenly distributes the blame for the past neglect of so many of our three million acres of private woodland between both the owners and the State; he would seem to favour State control over them, but by an authority separate from the Forestry Commission responsible for the State forests—an arrangement found in some Continental countries.

There are various general statements scattered through the book that need amplification or qualifica-

tion. Thus we are told that ploughing complicates rather than aids planting without giving any material advantage to the trees (p. 80), that pruning increases the volume of timber (p. 94), that the pine beetle breeds in the tops of old trees (p. 104), that the alder gives the best charcoal (p. 158)—this is only true if one wants charcoal for fuses—and that European larch and Japanese larch can be mixed with satisfactory results. There is an injunction we should not care to have to carry out in dealing with honey fungus attacks, namely, digging up all the rhizomorphs, and we cannot endorse the statement that beech does not coppice well and is on the other hand very suitable for natural regeneration in Britain. There is, too, the surprising inclusion of lime among the list of materials derived from wood (p. 158). We admit to having to refer to a dictionary to find out the meaning of the word "myrobellan" hedging (p. 82), and "coda" (p. 168).

Two chapters are devoted to notes on the individual kinds of trees. It is always difficult to know what to include and what to omit in such notes; but those given in these chapters, supplemented by those for timber uses given on p. 159, will be found useful by the people for whom the book is intended, though they are sometimes incomplete to the extent even of being misleading. One might perhaps have expected to find lodgepole pine mentioned, as it is to be seen at high elevations in many plantations in Britain, and a somewhat fuller account of sitka spruce in view of its now extensive use and the remarkable rates of growth recorded under favourable conditions. The difficulty of raising silver fir as a crop should have been mentioned.

It may be said in conclusion that it is an easy book to read and should certainly fulfil the author's avowed aim of being useful and interesting to the non-expert and general reader.

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ADVANCED ORGANIC CHEMISTRY

A Text-Book of Organic Chemistry

By Dr. Julius Schmidt and Dr. H. Gordon Rule. Revised and edited by Dr. Neil Campbell. Fifth edition, revised and extended. Pp. xi+939. (London and Edinburgh: Gurney and Jackson, 1947.) 32s. net.

THE appearance of a revised edition of this well-known work only four years after the last one calls for no comment in view of the momentous events of those years, both in the world of chemistry and elsewhere; it is indeed a tribute to the zeal of Dr. Campbell that he has not been content 'to allow chemical grass to grow unnoticed'. The printers and publishers are also to be congratulated on having completed a considerable task at a time of very great difficulty, in a manner that is a credit to all concerned.

One could wish, however, that British printers could emulate those in the United States in the neatness with which structural formulæ are reproduced. A glance at the varied and elongated benzene rings, some with double bonds and some without, apparently indiscriminately, and with substituents printed in the same way as hetero-atoms, when compared with the neat regular hexagons of some modern American books, is distressing; it is only fair to point out that this untidiness is found not only in this book, but also in all British publications with