

Geneticists come under fire. From a production point of view the postulation of new genes gets us nowhere, and, although progeny tests are useful, the method of their application needs further research. In man the differences in physique at different class-levels are due to the environment of rearing and but little to genetics; this is also true for animals. Certain environmental effects, such as vitamin deficiencies, may be passed on to the next generation, as may maternal effects such as size in horses. His main criticism of present-day genetics is that it does not give enough credit to environment, both external and internal, for it is only the provision of proper nutrition which allows the full genetical potential for production to be expressed.

The science of animal nutrition places too much faith in rationing on tables of food analysis which are based on chemistry and not enough on the biological value to the animal; this is the case with non-protein nitrogen. The present distinction between maintenance and productive rations needs a new outlook, for a cow can draw on her body for milk production. The transition from peasant to mechanized animal husbandry, which has not yet proceeded far enough in Great Britain, is outlined and the losses and gains assessed. On the medical side, it is doubted whether the protective value of foods, such as milk and eggs, is as good as it used to be before intensive methods of production were employed. The author's description of hill ewes at the end of winter as being "pregnant skeletons concealed in wool" is typical of the force with which he makes his points.

The book is provocative, for there is just cause for some of his criticisms, while for others, one hopes that they will stimulate replies from the specialists concerned.

JOHN HAMMOND

BROADLEAVED TREES OF BRITAIN

Guide to British Hardwoods

By Dr. W. B. R. Laidlaw. Pp. viii + 240. (London: Leonard Hill (Books), Ltd., 1960.) 30s.

THE main purpose of this handbook is to provide students, foresters, and others interested in the subject with a ready and accurate means of identifying the broadleaved trees of Britain. This is achieved with notable success for, although the range of subject-matter is wide enough to attract the interest of those who have a fairly extensive knowledge of botany, the presentation is so clear that the intelligent novice should have little difficulty in using it to identify all but the least commonly found trees and shrubs.

To some the title of the book will seem misleading. Does not the term hardwood suggest a discussion of timbers and the trees which produce them? But here is a field approach to the whole range of native broadleaved trees and shrubs together with those which have become so well established in Britain that they form a regular feature of its countryside, parks, and gardens, and there is also a carefully made selection of less frequently seen introductions. Only brief references are made to the qualities of the timber for which many hardwoods are of importance (Are all the major hardwoods really in such short

supply as the writer would have us believe?), and none to structural features.

All characteristics not considered essential for identification of the species in the field in all seasons have rightly, in a book of this kind, been discarded for the sake of clarity, but no trouble has been spared to show how the essential features may be used, through several lines of approach, for accurate identification. There are, for example, separate keys based on winter bud and twig details, summer characters, and fruits, summarized field characters in a concise tabular form, a table of seasonal characteristics, and the short, but adequate, descriptions of each species. One of the most outstanding features of the book must be the beautifully drawn and reproduced illustrations of leaf, flower, etc., in fine detail but with commendable clarity. The omission of any scale is, however, most regrettable.

For the beginner there is a short account of botanical anatomy and morphology. This is necessarily very condensed, and the beginner may find a little difficulty at first in absorbing parts, but such features as leaf- and flower-form, used extensively in identification of species, are given more fully. Together with the glossary of terms elsewhere in the book, the student should have sufficient background information to enable him to make full use of the main part of the work.

Those who are familiar with the commoner trees will find much of interest in the less-known species which the writer was, fortunately, persuaded to include, and will be most grateful for the more complete treatment given to the complex problem of identifying the willows and poplars.

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ADVANCES IN PLANT PHYSIOLOGY

Annual Review of Plant Physiology

Vol. 11. Edited by Leonard Machlis, in association with Winslow R. Briggs. Pp. vii + 468. (Palo Alto, Calif.: Annual Reviews, Inc., 1960.) 7 dollars.

WITH the present volume of the *Annual Review of Plant Physiology* this useful publication enters the second decade of its existence. As in past years the subjects dealt with range widely over the whole field of plant physiology. This volume of the *Review* has very much an international character, for the contributors have been drawn from no fewer than ten countries. Five of the contributions are from the United States, three from England, two from Germany and one each from Australia, Canada, Denmark, France, Japan, New Zealand and the U.S.S.R.

Of the seventeen articles, nine are concerned with various aspects of metabolism, which include the primary processes of photosynthesis discussed by A. A. Krasnovsky, and energy transfer through phosphorylation mechanisms in photosynthesis by O. Kandler. Nitrogen metabolism is represented by a short article by C. S. Yocum in which recent advances in knowledge of nitrogen fixation are considered, while the special metabolism of the succulent Crassulaceae is reviewed by S. L. Ranson and M. Thomas. Articles on transport in the xylem and in the phloem are contributed by E. G. Bollard and M. H. Zimmermann respectively, while the