

sumptuous style of the two volumes printed before the War. In Holland, apparently, questions of space, paper and binding have few terrors for the publisher. Last, but far from least, the large public unfamiliar with the Dutch language will be very grateful for the English translation.

F. J. COLE

10/6

THE GLOUCESTERSHIRE FLORA

Flora of Gloucestershire

Phanerogams, Vascular Cryptogams, Charophyta. Edited by the Rev. H. J. Riddelsdell, G. W. Hedley and W. R. Price. Pp. clyxii+667+44 plates. (Cheltenham: Cotteswold Naturalists' Field Club, 1948.) n.p.

IT is remarkable that so important a botanical area as the county of Gloucestershire should have had to await for so long the consummation of an account of its flora. The project was first conceived by the late Prof. Boulger some seventy years ago, and he had by 1878 compiled a list of more than a thousand species from this area. Nevertheless, except in respect of the Bristol region and casual records, very little real progress was again made until the impetus given by the Rev. W. Butt in 1905, and from 1908 to the time of his retirement by the Rev. H. J. Riddelsdell, who compiled what constitutes the main substance of the present work. But, though belated, the outcome is a Flora that is worthy of the botanical wealth which it enshrines.

There are here recorded 1,126 native species, 40 denizens and 23 colonists—a total of 1,189 species of vascular plants that includes such rarities as *Cephalanthera rubra*, the red helleborine, *Ranunculus ophioglossifolius* the adder's-tongue buttercup, and *Trinia glauca*, the honewort. Of all the species here enumerated, sixteen are noted as having become extinct, and of these, as is usual in other counties, the greatest proportion, namely, nine, are damp-habitat plants. Four of the extinct species are seaside plants and one is characteristic of woodlands.

The revision of names in accord with international rules has produced a number of unfamiliar labels for familiar friends, changes which cannot but be deplored when they do not reflect any increase of botanical knowledge. One new species is here described and figured under the name of *Epipactis cleistogama*.

The Flora is planned upon traditional lines, the records being grouped in respect to nine botanical districts. An unusual feature is the provision of keys to some of the groups, such as the Batrachian Ranunculaceae by Dr. Butcher, the Carices by Mr. Nelmes and the Gramineae by Mr. Hubbard. The last-named has provided keys not only to the species in each of the genera but also to the genera themselves.

Gloucestershire has for the student of plant distribution an especial interest, since various species are here at or near their geographical limit. The pasque flower (*Anemone pulsatilla*) and *Senecio campestris*, both members of the Continental element in the flora of Britain, attain here their western limit, and this is true also of the Continental orchids, *Orchis ustulata* and *Himantoglossum hircinum*. But the ground pine (*Ajuga reptans*) and the spider orchid (*Ophrys aranifera*) do not extend into the area. The endemic aconite (*Aconitum anglicum*), which is essentially a western plant in England, is

here probably at its eastern limit, though, since it is stated that some of the records are probably garden escapes, the doubt arises whether the endemic plant has been adequately distinguished from its cultivated congener. The western *Andromeda polifolia*, on the other hand, has its eastern limit to the west of Gloucestershire. Again, the northern *Prunus padus* here attains its southern limit; but the local *Phyteuma tenerum*, though found in Wiltshire, fails to reach the chalk of Gloucestershire. These few examples suffice to indicate the importance of distribution data for this area and the need for biological studies in respect to such marginal species.

The present work is a notable addition to the county Floras of Britain and a valuable contribution to the literature of geographical distribution of plants in Britain. The text is embellished with views of typical Gloucestershire habitats and portraits of some of the rarer and more interesting species.

E. J. SALISBURY

ELEMENTARY PHYSICS 2/6

A Laboratory Manual of Physics

For Higher Certificate, Scholarship and Intermediate Science Students. By Dr. F. Tyler. Pp. 207. (London: Edward Arnold and Co., 1947.) 7s. 6d.

Intermediate Physics

By Dr. F. J. Smith. Third edition. Pp. xii + 1033. (London: Edward Arnold and Co., 1947.) 18s. net.

Electricity

Text Book and Laboratory Manual for Inter.B.Sc., Higher School Certificate, University Scholarships, etc. By M. M. Das. Pp. xi + 483. (London: T. Murby and Co., Ltd., 1947.) 25s. net.

General Physics

By A. E. E. McKenzie. Pp. viii + 499. (Cambridge: At the University Press, 1948.) 8s. 6d. net.

DR. F. TYLER'S collection of experiments is intended to cover the practical work required for higher school certificate and university scholarships, and also for first-year university courses. Most of the really profitable class experiments which can be done with simple apparatus are included, and this carefully chosen list probably represents the highest common factor of all courses of this standard. Instructions, of the kind usually issued to students as 'manuscripts', explain the operations required, and show how the readings should be set out and the results calculated. The theory of each experiment is given in some detail, and, where the results are to be plotted, notes on the full interpretation of the graph are supplied.

Laboratory manuals can only reveal their quality in class, and it so happens that the reviewer has tried the book for more than a term with a small set of boys who had to work with little direct supervision. The results were satisfactory, and the pupils liked the book, which serves its purpose very well. Criticisms which arose in use are that the problem on the oscillation of a loaded tube on page 15 is more difficult than it appears, since the timing of more than a few oscillations is impossible; the directions for the