

has to no small extent been responsible. The application of the methods of pollen analysis to the peat deposits, it is true, has not as yet produced the results which were anticipated; nevertheless, the investigations at Plantation and Peacock's farms, Shippea Hill, to which frequent reference is made here, have provided an illuminating and unique sequence from Tardenoisian to Early Bronze Age, and demonstrated their relation to the marine deposits laid down when this area was at a lower level in relation to the sea.

The chapter by Dr. Clark on early man and that on the Anglo-Saxon period by Mr. Lethbridge raise numerous points, which invite discussion. Not the least interesting of these is the question of the continuity of the population in the successive phases of the Bronze Age, the thickly populated Romano-British period, and Saxon times. If these and other matters have to be passed over, it is for lack of space, rather than of inclination. Cambridgeshire, so far, has indeed been fortunate in its county historians.

Comparative Study of the Lower Plants

Vergleichende Morphologie der niederen Pflanzen:

eine Einführung in deren Formbildung und Formwechsel auf entwicklungsgeschichtlicher Grundlage. Von Prof. Dr. Bruno Schussnig. Teil I: Formbildung. Pp. viii + 382. (Berlin: Gebrüder Borntraeger, 1938.) 36 gold marks.

THE appreciable advances in our knowledge of lower plants during the present century has led to the publication, especially on the Continent, of a large number of relevant works, but most of these deal with Algæ or Fungi only as the case may be. A comparative treatment of the lower plants is therefore to be welcomed, and there can be no doubt that Prof. Schussnig has produced a book that will take its place among the accredited works on Thallophyta. This first volume is divided into four sections, two dealing with the cell and cell-division and two with the organization of the multicellular thallus. Here also is included a consideration of structure in relation to physiological function which is as unconvincing as most earlier accounts dealing with this topic.

It is natural that in a book of this scope new points of view should be advanced. Schussnig propounds the hypothesis that all parenchymatous types of thalli (for example, the polystichous Ectocarpales of Oltmanns) represent condensed systems of branching filaments, either uni- or multi-axial. This interpretation is extended not only to the parenchymatous Ectocarpales and Bangiales, but also to the Laminariales, Fucales, and even Dictyotales. Such a view has long been accepted for the Florideæ, but the facts provided by the author in support of its application to the parenchymatous Phæophyceæ carry little conviction. It is not feasible to discuss this theory here, the more since additional evidence is to be furnished in the second volume. Schussnig also

reaffirms (p. 180) his view that the Conjugales are derived from a polyenergic ancestry, and a similar origin is suggested for the Red Algæ, but it cannot be said that any strong evidence is adduced.

With the very wide range of topics discussed, it is perhaps inevitable that the treatment should in places be somewhat one-sided; for example, the problematic cytology of the Blue-Green Algæ would seem to have merited a fuller discussion than is afforded it on p. 33, where really only Baumgärtel's point of view is considered.

The treatment of the Fungi is not as full as that of the Algæ, a fact which is particularly noticeable in the very brief consideration of the plectenchyma of the former and in the discussion of parasitism. There are diverse minor points that call for criticism. As examples, we may note the reference to the spore as a normal stage in mitosis (p. 18) without mention of the fact that many recent authorities regard it as typical only of meiosis, the homology of the pseudocilia of Tetrasporaceæ with flagella (p. 59) for which there appears to be no adequate evidence, the use of the term *cœnobium* as synonymous with colony (p. 190), and the statement that growth-rings occur in the medulla of Laminariales (p. 375). The reference to Juller, rather than to Klebs or Pascher on p. 216 is misleading.

Despite such criticisms, however, Schussnig's book is often suggestive and stimulating, and the comparative treatment of many topics, especially in the first two sections, of great value. The book is essentially one for a specialist, since the matter is treated in such a way as to render it accessible only to those with considerable previous knowledge. It would, moreover, have fulfilled a more useful purpose had the text not been encumbered by the introduction of many new terms. The illustration is ample and excellent.

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