

so that there is room for further extension should hereafter a third edition become necessary.

The book is a very storehouse of information, and this will be realised if we state that for every important, and most other, species the information extends to:—

- (1) Size and appearance of tree; whether evergreen or deciduous; mode of branching.
- (2) Description of bark.
- (3) Description of wood, both sapwood and heartwood, with its colour, hardness, grain, scent, the character of the annual rings, pores, medullary rays, &c.
- (4) Distribution, rate of growth, &c., of the trees.
- (5) Weight per cubic foot of timber; transverse strength.
- (6) Sylvicultural aspect of the species.
- (7) Insects injurious to the tree; and other points of interest.

An admirable addition in this new edition are 96 photographs (enlarged $3\frac{1}{2}$ times) of timbers; these were prepared at the forest branch of Coopers Hill College from a large collection of negatives, started by Mr. C. A. Barber, now Superintendent of Botanical Survey, South India, when instructor in botany at the college.

Space is not available to enter upon a detailed account of the contents of this monumental book, but attention may be drawn to what, in our opinion, constitutes one or two shortcomings. India has been divided into eight regions for the purpose of indicating the main classes of forest growth, but, unfortunately, the author decided not to give a map showing these, because he thinks a map, to be of any real use, would have to be of a rather unwieldy size and would be difficult to insert. With this view we disagree. Considering that India comprises an area of about $1\frac{1}{2}$ million square miles, a map indicating the above-mentioned eight regions would have been exceedingly useful. On this map, the exceedingly varying rainfall, which practically governs the distribution of the forests, might have been shown in a summary manner, or it might have been given on a separate map. The size of these maps need not have been larger than that of a double page, and they could have been inserted with the greatest ease. Nor does the binding seem to us sufficiently strong in the case of a book of nearly 900 pages, which will be taken about in camp by those who are most in need of the information given in it.

Apart from these minor matters, we may confidently say that the book is of immense importance in the economic development of the resources of the Indian forests, and it should be, as the old edition has been, the constant companion of every Indian forest officer, and of others who take an interest in the subject.

We heartily congratulate the author on the successful completion of this new edition.

Phyllobiologie, nebst Übersicht der biologischen Blatttypen von ein und sechzig Siphonogamenfamilien.
Von Prof. Dr. A. Hansgirg. Pp. xiv+486; mit 40 Abbild. im Text. (Leipzig: Gebr. Borntraeger, 1903.) Price 10 marks.

PROF. HANSGIRG has written a big book that may have its use as a work of reference, but it certainly cannot be described as possessing an interest commensurate with its bulk. Long periods often extend over more than half a page, and are quite unbroken save for the commas delimiting the innumerable subordinate clauses that serve to qualify or define the main idea. An effort is made to classify the various kinds of leaves into different biological groups, and then the various types of leaves met with in different natural orders are successively indicated. As an example of the method, the case of the cricoid leaf-form may be cited. The type is briefly described, and then follows a list of plants, extending over eight pages, that are grouped under it.

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In the concluding chapters a short summary of the main results is given, and their general bearing upon variation and evolution is briefly discussed. It is pointed out that closely related species often are found to possess very different kinds of leaves, and this fact is related to the combined interaction of the environment and the inherent constitution of the organism. The author seems to suggest that it may be possible to construct a sort of phylogeny of these adaptations, and so to refer them back to a primitive leaf-form. But it may be doubted whether such speculation can really advance matters very much. We know too little of the former climates and of the extent of adaptive variation these were able to evoke, and the more profitable line of inquiry would seem to be that which is directed towards an experimental treatment of plants at the present day. This line of investigation has already proved itself to be fruitful, and there is reason to think that it is by no means as yet worked out.

The Lepidoptera of the British Islands. A Descriptive Account of the Families, Genera, and Species Indigenous to Great Britain and Ireland, their Preparatory States, Habits, and Localities. By Charles G. Barrett, F.E.S. Vol. viii. Heterocera, Geometrina. Pp. 431. (London: Lovell Reeve and Co., Ltd., 1902.)

THE eighth volume of Mr. Barrett's great work on the British Lepidoptera deals with upwards of 120 species, referred to the families Acidaliidæ and Larentidæ, the latter being extended to include the genus *Eubolia* and its allies, sometimes treated as a distinct family. Consequently, this volume is devoted to the interesting groups of slender-bodied, broad-winged moths known as "Waves," from their white or yellow wings, crossed by wavy dark lines; and "Carpets," from their intricate and festooned patterns. The great genus *Eupithecia*, which includes the smaller and darker moths called "Pugs" by collectors, which belongs, like the "Carpets," to the Larentidæ, stands over until the next volume.

The scope of Mr. Barrett's work is indicated by the title-page, and the workmanship, of which we have spoken fully in our notices of previous volumes, remains on the same level of uniform excellence. The present range of each species is given very fully, and this, though a subordinate point, is very useful, not at the present moment, but as supplying accurate data for a future comparison of the range of the same species in the British Islands at different periods. The works of Stephens, Stainton, Meyrick, Barrett, and of subsequent writers will enable this to be done with approximate accuracy whenever it seems desirable to make such a comparison, which will be more useful, perhaps, in the case of moths than butterflies, for the history of British butterflies, unfortunately, is one of increasing restriction of range and increasing rarity, ending, but too often, in utter extinction. Nevertheless, in the "Additions and Corrections" (p. 428), we read of the capture of a specimen of *Polyommatus Dorylas*, Hübn., near Dover, in 1902, a butterfly which, though figured as British by Lewin a century ago, has never been formally admitted into our lists, single specimens only being met with on the south coast of England, at intervals of many years.

We should mention that there is a large-paper edition of this work, illustrated by good coloured plates of all the species in their various stages; but at the moment of writing this is not before us.