

present case, lustra-cellulose is not silk at all. Why, therefore, call it silk? Messrs. Cross and Bevan likewise correct the oft-repeated statement that lustra-cellulose is highly inflammable, and point out that "Lehner" silk, which has been denitrated, contains only 0.19 per cent. of nitrogen.

There are many other sections in the book which we should like to dwell upon, but space forbids. We would only draw attention to the articles on constitution, furfuroids and industrial developments, all of which are of great interest.

The book before us is to a certain extent disjointed, but we have already stated that it consists largely of abstracts, therefore it is hardly to be expected that the authors could construct a connected narrative. In their anxiety not to *pad*, the authors have, at times, made the text almost too bare. For this reason it is sometimes hardly as clear as one could wish. This, however, is only a minor blemish. Messrs. Cross and Bevan are experts in this branch of chemistry, and have presented us with a book which is replete with important matter. It is not a book for the tyro, but we sincerely trust that it will be widely read by chemists, and we believe that research work on cellulose will be thereby greatly stimulated.

F. MOLLWO PERKIN.

OUR BOOK SHELF.

Irish Topographical Botany. By R. L. Praeger. Pp. clxxxviii + 410. (Dublin: Hodges, 1901.)

Practical Text-book of Plant Physiology. By D. T. Macdougall, Ph.D. Pp. xiv + 352. (New York and London: Longmans, Green and Co., 1901.) Price 7s. 6d. net.

THE botanical survey of a country demands a good deal from the men who undertake it, and one source of confusion now apparent in the many and various attempts being made in many and various parts of the world is the different ideals set up by different workers as to what constitutes a botanical survey. The purpose of Mr. Praeger's well-printed but somewhat heavy book is to give records of the county distribution of plants in Ireland, and the task—probably a thankless one in proportion to the labour it must have cost—seems well done. To our thinking, however, the book is only rescued from being a very dry and bulky reference list by the attempt, in Section ii. of the introduction, to sketch in outline the botanical features of Ireland in terms of plant communities.

It must be added, however, that the list appears to be very complete and is accompanied by six excellent maps, and there can be no doubt that the work will be indispensable to the reference library of the systematic botanist.

Dr. Macdougall has written an interesting and, in many ways, an excellent text-book. We have often wondered why plant physiology should so often be treated from the point of view which emphasises the obscure relations between structure and function involved in the phenomena of life and which almost ignores the many side-issues bearing on the practice of plant-culture, and it is a pleasure to see a work in which these latter are kept in view.

Many of the experiments are neat and well chosen, and the most striking are often the simplest—*e.g.* that of Molisch for demonstrating the hydrotropism of roots (Fig. 28), or that selected for showing the swelling of seeds on imbibition (Fig. 84).

Many readers would probably have wished for fuller

discussion of theoretical points. The short statement on p. 215, for instance, as to the ascent of water in plants, is meagre if not misleading. The sentence on p. 8 hardly does justice to Czapek and Pfeffer's clever work on the geotropic region of the root-tip, or to Darwin's beautiful proof that the tips of *Setaria* seedlings are alone sensitive to the heliotropic stimulus, while the wholesale acceptance of Nemeč's conducting fibrillæ probably needs further justification.

As sometimes happens with American books, the English reader may be startled, if not puzzled, by some of the expressions—*e.g.* "the substances illy affected" (p. 57) and "A second experiment, exploited by Pfeffer and extended by Czapek" (p. 78) seem to need explanation.

In spite of faults, however, the book may be welcomed as a useful one.

Botany, an Elementary Text for Schools. By C. H. Bailey. Pp. xiv + 355. (New York: The Macmillan Company. London: Macmillan and Co., Ltd., 1900.) Price 6s.

THIS volume, like all Prof. Bailey's works, bears the stamp of originality, and in many respects forms an excellent model of what a school book on botany ought to be. Naturally the examples chosen for study are such as can be easily procured in America, but teachers at home might readily learn much from the author.

The details of plant-structures are introduced in a way calculated to excite the interest and attention of the learner, and the very numerous illustrations are directed to the same end. They are excellently chosen and admirably executed. The portion of the book which is devoted to an account of the minute structure of the tissues strikes us as the weakest part of the whole, and also as perhaps the least useful, having regard to the needs of beginners in the study of plants. The concluding pages give directions for forming collections of plants and for determining the species which are likely to be commonly met with.

Not the least valuable of the lessons to be drawn from Prof. Bailey's book are to be found in the preface, in which much sound advice is given as to the kind of work most suited to the needs of school children. After all, it is the training which is the thing of real value—the development of the faculties of observation and of drawing right inferences from observed facts.

(1) *Curso Elemental de Física Moderna*; (2) *Elementos de Física Moderna.* By Dr. R. Pedro Marcolain San Juan. (1) Pp. 804, with 894 woodcuts; (2) pp. 492, with 608 woodcuts. (Zaragoza: Emilio Casañal, 1900.)

THESE are two treatises on descriptive physics, of which the second book is merely an abridged edition of the first. Each is divided into three parts. The first deals with mechanics, including hydromechanics and acoustics; the second with radiology, including heat as well as light; and the third with electricity, being subdivided under the headings of electrostatics, electrodynamics and electrotechnics. In speaking of the subject-matter as descriptive physics, in contradistinction to mathematical or experimental physics, we mean to imply that the books belong to the class of popular treatises containing a general description of the properties of matter suitable for ordinary readers, and illustrated by pictures of steam engines, barometers, siphons, Atwood's machines, pumps, batteries, water boiled by cold, electric telegraphs and all that sort of thing. It is rather amusing to find in the chapter on general dynamics in the larger volume, not only an account of the *mechanism* of the Funicular Railway up Vesuvius, but also a description of the crater and of the panorama from the summit.