

(2) We doubt whether this book is sufficiently elementary to be of service to the private owners and managers of goods for whose use it was intended. A working-plan document, the headings of which take up ten printed pages, will scarcely appeal to the ordinary forester. The book is not a whit simpler than the well-known manual of Schlich, vol. iii., which for many years has been the recognised text-book on forest management in British and Indian forestry schools.

It may, however, supplement that authority to some extent, for it throws light on forestry terms and usages in America—for example, the advanced student will find in it interesting matter concerning subjects like “log-rules” and “stumpage-values.” The chapter on “timber-cruising” will be useful to foresters who intend to practise abroad in wild regions where rough-and-ready methods of estimating the value of timber in virgin forests are the only practicable means. The book concludes with an appendix of useful tables.

(3) This volume treats of the main industries which are dependent for their raw materials on the miscellaneous products of the forest, and we welcome it as the first American text-book on this subject. The author spent ten years of investigation and travel in the United States on its preparation, and has incorporated with his own observations much information from scattered reports and papers. A separate chapter is devoted to each industry, ample details being given of raw materials, processes of manufacture, equipment and machinery, costs, utilisation of waste products, etc., interspersed with specifications, tables, and statistics, and concluding with a select bibliography.

The industries described are important, and include wood-pulp and paper, tanning materials, veneers, cooperage, turpentine, wood-distillation, charcoal, boxes, railway sleepers, poles and posts, mining timber, firewood, shingles, maple sugar, dyewoods, excelsior, rubber, and cork.

Prof. Brown's treatise is appropriately illustrated, and replete with accurate information. It will prove useful to foresters and manufacturers generally, and it should be perused by all interested in the economic working of our own woodlands, for it suggests methods by which thinnings, underwood, and waste timber might be utilised.

### Our Bookshelf.

*The Journal of the Institute of Metals.* Vol. xxiv. No. 2, 1920. Edited by G. Shaw Scott. Pp. xiv+547+xi plates. (London: The Institute of Metals, 1920.) 31s. 6d. net.

THE latest volume of this journal contains an unusually large number of important papers. The

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May lecture by Dr. Benedicks deals with recent work in thermo-electricity, and gives details of the author's discovery of a thermo-electric effect in circuits composed of a homogeneous metal. These results have been published elsewhere, but they are now brought together in a concise and convenient form. The study of crystal growth in metals which have been subjected to cold work, by Prof. Carpenter and Miss Elam, contains many interesting observations. The authors were fortunate enough to find an alloy which preserves a complete record of successive stages of crystal growth on a prepared surface, and this has enabled them to trace, with remarkable clearness, the course of events throughout a variety of conditions. The difficult system of alloys of aluminium and magnesium has been investigated by metallographic methods by Mr. Hanson and Miss Gayler, the results being recorded in the form of an equilibrium diagram presenting several unusual features. A note by Mr. Dickenson, on intercrystalline brittleness produced by the action of fusible metals on brass under stress, contains facts which bear on the nature of brittleness in general, while another note reviews the evidence for the allotropy of zinc. Several papers deal with practical brass foundry questions, and another describes the experience on war vessels with regard to the corrosion of condenser tubes, on which a committee of the institute and other bodies continues to conduct elaborate investigations. The volume contains, as usual, a very large number of abstracts of papers published elsewhere, and mention should be made of the excellence of the numerous plates of photomicrographs.

C. H. D.

*The Bahama Flora.* By Prof. N. L. Britton and Dr. C. F. Millspaugh. Pp. viii+695. (New York: The Authors, New York Botanical Garden; London: Dulau and Co., Ltd., 1920.) 37s. 6d. net.

THE first thing which strikes one on opening this flora is the excellent paper, such as one seldom sees on this side of the Atlantic. Prof. Britton's name is a guarantee of the excellence of the work regarded as a flora; and though some who are accustomed to the older floras will probably find comparisons increased in difficulty by the number of splittings of genera that have been made, no one who has worked with tropical plants in the living condition will be likely to question the necessity of this splitting in a great number of cases. This is the first complete and modern flora of the Bahamas, and many people, not realising that the group is a trifle larger than Jamaica, and much larger than all the remaining British West Indian islands, may be surprised to learn that they contain 995 species of flowering plants.

Prof. Britton states that there is no geological evidence that there was ever land connection to the Bahamas, but the evidence of the flora itself points to such a probability. Inasmuch as the flora contains 133 endemic species out of 995, or 13 per cent., the connection must be far back, as