as the translator says, that "no material passages have been omitted," certainly some delightful immaterial passages seem to have fallen by the wayside. It is to be hoped that this book, complete as it attempts to be, is not the last word on this subject and that soon we may have one of these creatures on display in one of our oceanariums. In the meanwhile, every research vessel should have a copy of this volume in its library, although it may be necessary to chain it to the bulkhead to keep it from going ashore in someone's duffel bag.

JOEL W. HEDGPETH
Marine Science Laboratory,
Oregon State University, Newport

Forestry and Industry

Wood as Raw Material. Source, Structure, Chemical Composition, Growth, Degradation and Identification. GEORGE TSOUMIS. Pergamon, New York, 1968. xii + 276 pp., illus. $10.

This book presents a general, but quite comprehensive, review of the sources and characteristics of wood that affect its use as an industrial raw material. Beginning with a brief description of forest trees as sources of wood, the author goes on to give the reader descriptions of macroscopic, physical, and microscopic characteristics of wood, followed by discussion of its chemical composition and ultrastructure, the mechanism of wood formation, the formation and structure of bark, variations in wood structure, and abnormalities in and degradation of wood, and ends with keys for identification of wood and some material on techniques for microscopic investigation.

The book is written primarily as a textbook for students in fields in which a knowledge of wood is necessary—forestry and its various constituent specialties of forest management, silviculture, tree physiology, forest genetics, forest soils, forest engineering, forest and wood pathology, pulp and paper technology, and wood science and technology. The author also proposes to meet the needs of the wood industry, of engineers, and of architects.

Those objectives are attained only to a limited degree. The treatment is adequate in most respects for those wanting a general knowledge of wood structure and formation. The material is presented in such a way as to be understandable and meaningful to most such readers. However, the presentation of such a broad range of information in a relatively small book has been at the expense of clarity in some places and has resulted in excessive generalization in others. Many of the illustrations are likely to be unclear to a person using the book as an introduction to the field and are thus not consistent with the text in level of understanding required. The book would be useful in a high school or a junior college provided the instructor knew enough of the subject to cope with some of the more general statements. The presentation does not seem adequate for serious students of wood science and technology or pulp and paper technology, for which much more detailed knowledge of wood structure and characteristics is essential.

The book omits any reference to the major strength and related mechanical properties of wood. This would seem to be a serious omission if the book is to be truly useful to engineers, architects, and many in the wood industry.

In spite of these limitations, the book is well worth consideration by those who desire a brief, general treatment of the growth and structure of wood. It certainly has merit for this purpose.

ROBERT L. YOUNGS
U.S. Department of Agriculture,
Forest Service, Washington, D.C.

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