

colloids, quantum theory, photochemistry, and nucleonics are included. Emphasis is placed on the structure of matter, and not until this fundamental groundwork has been treated is the student exposed to the more abstract thermodynamic development of the subject. Practically all the necessary mathematical derivations are given in detail in the text; only a few are relegated to an appendix for the ambitious student. The annoying tendency of many writers to overwork the phrases "it can be shown" and "obviously" does not appear.

One of the best features of this text, from the pedagogical point of view, is the liberal use of numerical examples and problems. Furthermore, these are not hypothetical cases which fail to give the student any contact with reality, but are mainly based on actual data from the literature. It is the sort of training which will best prepare the student for research work later. These problems cover the whole range of practical work from calculation of atomic weights from gas densities to determination of the rate of transmutation in an atomic pile. Another commendable feature of the book is the bibliography: references to up-to-date literature are given, and, in addition, each chapter concludes with a series of cross-references to other books for supplementary reading. It is a pleasure to recommend *Outlines of physical chemistry*, and Prof. Daniels is to be congratulated for a fine piece of work.

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North American trees (exclusive of Mexico and tropical United States). Richard J. Preston, Jr. Ames, Ia.: Iowa State College Press, 1948. Pp. lv + 371. (Illustrated.) \$4.00.

Setting as his triple target the nontechnical public, students, and scientists, the author should be credited with a near miss. For the nontechnical public and for beginning students of dendrology, this compilation of illustrations and almost telegraphic descriptions of the important trees of the United States and Canada should prove very helpful. Certainly, it will save the time of those who, in the past, have had to consult five or six important works for various geographic regions. But the scientist will wish to digest for himself the authoritative source material which the author has assimilated but failed to cite in any list of references in this volume.

Eleven pages, packed full of technical terminology and diagrams, are devoted to a *nontechnical* explanation of the "Natural Relationship of Trees" and to descriptions of the "Forest Regions of North America" and "Tree Characters." Had the frontispiece map been slightly modified to coincide with the groupings of the forest regions in the text, this subject of regions and forest types would have been even more useful.

The Keys to the Genera—the keys to the species of the genera among the gymnosperms and to those of the genera among the angiosperms—will, with the liberal use of the 9-page glossary, prove very useful indeed. However, the chief value of the book would seem to lie in the compact presentation of drawings of foliage, twig, bud, fruit, and

seed characteristics in a form convenient to take into the field for direct comparison. The small distribution maps are also helpful.

The volume is recommended to those who are frequently plagued with the question: "What's that tree?"

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Scientific Book Register

COURANT, R., and FRIEDRICHS, K. O. *Supersonic flow and shock waves*. New York-London: Interscience, 1948. Pp. xvi + 464. (Illustrated.) \$7.00.

HARRISON, GEORGE R., LORD, RICHARD C., and LOOFBOUROW, JOHN R. *Practical spectroscopy*. New York: Prentice-Hall, 1948. Pp. xiv + 605. (Illustrated.) \$6.65.

MAYER, CLAUDIUS F. (Ed.) *Index-catalogue of the library of the Surgeon General's office, United States Army (Army Medical Library)*. (Fourth Series, Vol. X, M-Mez.) Washington, D. C.: Superintendent of Documents, U. S. Govt. Printing Office, 1948. Pp. iv + 994. \$4.25 (cloth).

POLLARD, ERNEST C., and STURTEVANT, JULIAN M. *Micro-waves and radar electronics*. New York: John Wiley; London: Chapman & Hall, 1948. Pp. vii + 426. (Illustrated.) \$5.00.

SCHMIDT, ALOIS X., and MARLIES, CHARLES A. *Principles of high-polymer theory and practice*. New York-London: McGraw-Hill, 1948. Pp. xii + 743. (Illustrated.) \$7.50.

SEWELL, R. B. SEYMOUR. *The free-swimming planktonic Copepoda: geographical distribution*. (The John Murray Expedition, 1933-34; Sci. Rep., Vol. VIII, No. 3.) London: British Museum (Natural History), 1948. Pp. 318-592. (Illustrated.) 35/-.

SMITH, AUSTIN, and HERRICK, ARTHUR D. (Eds.) *Drug research and development*. New York: Revere, 1948. Pp. xi + 596. \$10.00.

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agreement of our findings with the predicted theory of the ultrastructure of the chromosome. The unit particles observed by us were associated with individual chromonemata. Although the particles varied in shape and size from one band to another, they had a uniform character in any one band. Their size range and density make them comparable with virus and bacteriophage particles. They are identifiable with the substance of chromomeres well known to the light microscopist. There is no doubt but that this is nucleoprotein. In view of these conclusions, it seems reasonable to believe that the discrete particles we have seen are genes.