

photons." And so on. One can sympathize with the author who uses the usual "T" to represent absolute temperature, rather than the "K" given in the list. The reader should be warned, if previous experience has not already warned him, that the list is far from inclusive.

For the most part, this book will appeal to engineers and applied scientists. Few will be interested in all the papers; however, the variety of topics dealt with will provide almost everyone with something of interest.

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Botany

Principles of Angiosperm Taxonomy.

P. H. Davis and V. H. Heywood.
Van Nostrand, Princeton, N.J., 1963.
xx + 556 pp. Illus. \$15.

Davis (University of Edinburgh) and Heywood (University of Liverpool), both working taxonomists who are especially familiar with the Mediterranean flora, have written a new textbook on plant taxonomy, a subject on which new books are not a frequent occurrence. Most American colleges use Lawrence's *Taxonomy of Vascular Plants* (1951) and very recently Benson's *Plant Taxonomy: Methods and Principles* (1962). More than half of Lawrence's useful volume is devoted to treatments of particular families, and the book is primarily concerned with traditional methods, treated rather briefly. Benson's text is more theoretical, but it contains extensive discussions of specific examples, many drawn from the genera *Quercus* and *Ranunculus*.

The new work is entirely theoretical and therefore especially welcome. It is also comparable to but much more comprehensive than Simpson's *Principles of Animal Taxonomy* (1961). It delves especially into the theory of characters, both macroscopic and microscopic, and its application to classification and goes fully into taxonomic evidence from plant morphology, anatomy, palynology, embryology, cytology, and genetics. An admirable exposition is given of the "new systematics," including intensive treatments of evolutionary and phylogenetic theories, and especially of population theory (by Turesson and others), breeding behavior, and the newest fields of phytochemis-

try and machine methods in taxonomy (necessarily limited to the few published papers, chiefly by Sokol and Sneath). The stimulating contributions to the taxonomic treatments made by such relatively new concepts as ecotypes, polyploids, apomicts, clines, introgressants, and species aggregates is especially full and welcome in that there are no uniformly accepted methods at present. The book does not entirely neglect herbarium methods in taxonomy. (Heywood is the chairman of the editorial committee for the monumental *Flora Europaea*, the first volume of which is expected momentarily, and is thus entirely familiar with traditional methods.) However, since this book deals only with taxonomy, restricted to the principles of classification, and not with systematic botany in general, the authors do not discuss any particular systems of classification in detail, for such information can be readily obtained elsewhere—in Lawrence's text or Benson's *Plant Classification*.

It is inevitable that a British text should draw chiefly on the European literature and that Benson and Lawrence should draw most of their references from American publications. The new work is therefore even more valuable in that it covers and synthesizes a large body of information from European sources, including the Soviet Union, which are not otherwise readily available to teachers and students. This new text, being the only one to bring together and integrate the vast body of present-day knowledge bearing on taxonomy, should and undoubtedly will be used as a text in many college courses in systematic botany, and all working taxonomists will need to have it close at hand. Zoologists too will find it necessary, since the taxonomic principles involved are the same essentially in plants and in animals.

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On Science Popularization

A History of Communications. Maurice Fabre. Hawthorn, New York, 1964. vii + 105 pp. Illus. \$5.95.

This book is the ninth in a series of 12 volumes, *The New Illustrated Library of Science and Invention*, which purport to "chronicle mankind's major

scientific and technological achievements." Although written in a lively style by a French popularizer and handsomely printed in Switzerland, this volume fails to live up to its promise; many significant communication advances are omitted, or treated only superficially, and the author frequently forgets that the book's focus is supposedly scientific and technological.

In brief, Fabre is more concerned with the sociocultural and economic relations of communications than with its scientific and technological development. For example, in the chapter "Books, paper, and printing," only three sentences are devoted to technical advances in printing after Gutenberg, but several pages are given to the rise of publishing as a business and the growth of public libraries. The chapter entitled "The rise of the press" allows only two paragraphs to technical matters, such as the linotype and rotary press, and is devoted almost entirely to the history of the freedom of the press. In his final chapter, the author confesses that communications theory "is too complex and too technical for a book of this nature" (!), mentions the name of Claude Shannon in passing, and hurriedly moves on to lengthy—and frequently shallow—discussions of the role of advertising and the effects of radio and television on mass culture.

The illustrations (many in full color) are beautiful examples of the arts of the photographer and engraver. Unfortunately, most of them are as irrelevant to the text as the text is irrelevant to the scientific and technological history of communications.

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Mathematics

Lectures on Boolean Algebras. Paul R. Halmos. Van Nostrand, Princeton, N.J., 1963. vi + 147 pp. Illus. Paper, \$2.95.

Although it was composed at about the same time, this book is a younger, more spritely cousin of Sikorski's *Boolean Algebras* (Berlin, 1960). Except for some exercises and a few sections, the material is an explication and modernization of Stone's contributions, but it is clear that much has been done about Boolean algebras since