degeneracy, and tropistic behavior. Each of these subtopics is introduced with appropriate definitions, background materials, or problems, and then the studies of factors influencing or concerning the topics are presented. A noteworthy thing about the chapter, as about the others of which it is typical, is the amount of information Munn has been able to include on methodology as well as on findings and problems of so many research studies.

As to functions for which the book is adaptable, it would appear to be most useful to the investigator who already has a "problem" and wishes to know what work with the rat has a bearing on it. It should also be valuable to the advanced student and to the theorist as a reference source. Likewise, it should be of aid to the careless or forgetful teacher who has not kept his reference files in good shape. It cuts across too many course-areas in the curriculum of psychology to be indicated as a general textbook.

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Die Welt der Vektoren: Einführung in Theorie und Anwendung der Vektoren, Tensoren und Operatoren. Franz Ollendorff. Vienna, Austria: Springer-Verlag, 1950. 470 pp. $9.00 paper; $9.60 bound.

This book on vector and tensor analysis not only covers the algebra and calculus of vectors and tensors, but is especially rich in its applications, which range over affine space and the spaces of Minkoroski, Riemann, and Hilbert. The mathematical treatment is brief and largely formal; differentials and increments seem to be interchangeable, and the basic integral theorems are proved with but slight regard to rigor and are stated as if universally applicable to all kinds of functions and quite arbitrary regions. The distinction between necessary and sufficient conditions is not always sharply drawn. For example we are shown (p. 58) that div rot $V = O$; the next sentence assures us that, "conversely," the differential equation div $W = O$ has the *general* integral $W = \text{rot } V$, but without a word of proof or even a suggestion that there is anything to prove. Similarly it is taken for granted (p. 319) that a Riemannian n-space can always be embedded in a Euclidean $n(n+1)/2$-space.

The notation used makes the book very trying to read—scalars are denoted by Roman type, vectors by italic. In a complicated page of symbols these distinctions do not stand out as well as when the usual practice of denoting vectors by bold-face type is followed. Parentheses and brackets are used for the scalar and vector products instead of the customary dot and cross between the factors. The latter notation of Gibbs, which leaves the signs of aggregation for their proper uses, is gradually winning adherents in various parts of the world and seems destined to become standard.

In spite of these shortcomings the book is a valuable addition to the literature of vector analysis. The applications are very numerous and their scope is truly impressive, for they cover much of the "world" of mathematical physics: classical mechanics, space lattices and crystal structure, hydrodynamics, elasticity, Minkoroski's electrodynamics (special relativity), a brief glance at the gravitation problem (general relativity), electrical networks, and finally quantum mechanics. Even when the treatment is not too lucid and convincing, it is often suggestive and plausible. The book will be especially useful to those who are already somewhat familiar with the subject matter. The reader who approaches these matters for the first time will find the going quite rough.

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Scientific Book Register

Economic Aspects of Atomic Power. Sam H. Schurr and Jacob Marschak. Princeton, N. J.: Princeton Univ. Press, 1950. (For the Cowles Commission for Research in Economics.) 289 pp. $6.00.

Encyclopedia on Cathode-Ray Oscilloscopes and Their Uses. John F. Rider and Seymour D. Uslan. New York: Rider, 1950. 982 pp. $9.00.

Marine Geology. Ph. H. Kuenen. New York: Wiley; London: Chapman & Hall, 1950. 568 pp. $7.50.

Carotenoids. Paul Karrer and Ernst Jucker; trans. and revised by Ernest A. Braude. New York: Elsevier, 1950. 384 pp. $8.50.

Deciduous Forests of Eastern North America. E. Lucy Braun. Philadelphia: Blakiston, 1950. 596 pp. $10.00.

Oral Pathology: A Histological, Roentgenological, and Clinical Study of the Diseases of the Teeth, Jaws, and Mouth. 3rd ed. Kurt H. Thoma. St. Louis, Mo.: Mosby, 1950. 1,592 pp. $17.50.

Colloidal Dispersions. Earl K. Fischer. New York: Wiley; London: Chapman & Hall, 1950. 387 pp. $7.50.

Progress in Biophysics and Biophysical Chemistry, Vol. I. J. A. V. Butler and J. T. Randall, Eds. New York: Academic Press; London: Butterworth-Springer, 1950. 279 pp. $6.80.

Colorimetric Determination of Traces of Metals. 2nd ed. E. B. Sandell. New York: Interscience, 1950. 673 pp. $9.00.

Progress Volume: Modern Developments in Therapeutics and Methods of Treatment. Companion volume to "An Integrated Practice of Medicine." Harold Thomas Hyman. Philadelphia: Saunders, 1950. Pp. 4133–4867. $10.00.

A Manual of Physics. 5th ed. J. A. Crowther. New York: Oxford Univ. Press, 1950. 594 pp. $4.25.

How to Develop Your Thinking Ability. Kenneth S. Keyes. New York: McGraw-Hill, 1950. 246 pp. $3.50.

Principles of General Psychopathology: An Interpretation of the Theoretical Foundations of Psychopathological Concepts. Siegfried Fischer. New York: Philosophical Library, 1950. 327 pp. $4.75.