

bench out." "She was waiting at my lawn." These two testing sentences contain all the fundamental sounds which contribute appreciably to the physical power of English speech. Spoken in ordinary tones by a typical voice they represent no more than 1000 ergs of energy in the sound waves. For comparison, a little 25-watt light bulb uses up energy at the rate of $2\frac{1}{2}$ billion ergs every 10 seconds—so it would take the continuous chatter of $2\frac{1}{2}$ million people to keep even. When speech must be transported by wire or radio to great distances the layman should not accept the matter so casually. (Too bad that so much of what people have to say is less wonderful than the machinery which permits them to say it.)

Chapter 14 entitled "Space-Time Pattern of Hearing" is especially significant. Fletcher presented this first in 1930, and now considers that "the experimental data that have accumulated since then indicate that the main parts of the theory are correct." He regards the observations of Békésy as having left "no doubt as to the general mechanical behavior of the cochlea."

The book is handsomely printed, with many mathematical equations and diagrams.

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The Science of Color. Committee on Colorimetry of the Optical Society of America. New York: Crowell, 1953. 385 pp. Illus. + plates. \$7.00.

In 1922 a Committee on Colorimetry, under the chairmanship of Leonard T. Troland, published a report on colorimetry in the *Journal of the Optical Society of America and Review of Scientific Instruments*. That report defined a clear and consistent terminology in the field of colorimetry; summarized the available physical, psychophysical, and psychological data relating color to its stimulus conditions; and outlined the principal methods of color measurement. At the time of its publication, the 1922 report was the most complete and authoritative compilation of material in the field of colorimetry. It stood for years as the outstanding reference source on this subject.

Some years ago the Optical Society recognized that the 1922 report was in need of revision and, in 1933, a new committee, under the chairmanship of Loyd A. Jones, was appointed to revise the earlier work. This newer committee comprising 23 of the most distinguished names in color science, has been at work since 1933. The present volume represents the results of their efforts.

The Science of Color contains nine chapters: From the Art of Coloring to the Science of Color; The Concept of Color; Anatomy and Physiology of Color Vision; Psychological Concepts: Sensory Aspects of Color; Psychological Concepts: Perceptual and Affective Aspects of Color; Physical Concepts: Radiant Energy and Its Measurement; Psychophysics of Color; Quantitative Data and Methods for Colorimetry; and Colorimeters and Color Standards. There follow some 600 references and 22 pages of an un-

usual Glossary-Index. Terms are not only listed and indexed; they are also defined.

No review would be complete if it failed to mention the wealth of illustrative and tabular material in the book. There are 25 handsome color plates, over 100 black-and-white illustrations, and 40 tables. As in the 1922 report, the great amount of quantitative material presented in the tables and in some of the illustrations guarantees that this will be a standard reference on colorimetry for many years to come.

For all that, *The Science of Color* is likely to leave the expert a little disappointed in ways of varying importance, some small, some large. The first chapter, for example, devotes a considerable amount of space to some archeological findings and to the use of color in prehistoric and ancient art. This is all very interesting, but one wonders if the space should not have been more suitably devoted to a better coverage of quantitative data on the sensory aspects of color, or even to a fuller discussion of the scientific beginnings of the study of color (accorded a scant 4 pages of the 29 comprising the first chapter).

Then there is the matter of the references which, despite their impressive number, are limited in value because they are not indexed. At the very least, they might have been listed alphabetically by author.

One might go on and list a number of more minor annoyances, inaccuracies, and the like, but to do so might only be an indication of the reviewer's perfectionistic expectations. This is an outstanding book in the field of color. Of that there can be no doubt. If you work with color or want to study it scientifically, you cannot afford to miss it.

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Scientific Book Register

Atomic Weapons in Land Combat. G. C. Reinhardt and W. R. Kintner. Harrisburg, Pa.: Military Service Pub., 1953. 182 pp. Illus. \$3.95.

Tables of Normal Probability Functions. (Reissue of *Mathematical Table 14*, with corrections.) National Bureau of Standards Applied Mathematics Series 23, 1953. Prepared by New York Mathematical Tables Project. Order from Government Printing Office, Washington, D. C. 344 pp. \$2.75.

Medical Schools in the United States at Mid-Century. John E. Deitrick and Robert C. Berson. New York-London: McGraw-Hill, 1953. 380 pp. Illus. \$4.50.

The Green and Red Planet. A physiological study of the possibility of life on Mars. Hubertus Strughold with assistance of Green Peyton. Albuquerque: Univ. New Mexico Press, 1953. 107 pp. Illus. + plates. \$4.00.

Mathematical Aspects of the Quantum Theory of Fields. (Pub. from N.Y.U. journal *Communications on Pure and Applied Mathematics*, 1952-53.) K. O. Friedrichs. New York-London: Interscience, 1953. 272 pp. \$5.00.

Motivation and Morale in Industry. Morris S. Viteles. New York: Norton, 1953. 510 pp. Illus. \$9.50.