Perception and Communication. D. E. Broadbent. Pergamon, New York, 1958. 338 pp. $8.50.

Potential readers may be misled by the title of this book, particularly if they think of "perception" in a general sense and of "communication" as involving interactions among two or more people connected by a channel. The author treats the individual as the channel and is concerned with interrelations among and between input events and output events. A more appropriate title would have been "Auditory Perception and Behavior," and as a sample of the chapter headings indicates—"Selective listening to speech," "Effects of noise on behavior," "The nature of vigilance," "The nature of extinction," "Recent views on skill"—the book serves as a vehicle for review and interpretation of specific research areas in which the author has worked.

This does not mean that the reader, particularly if he is conversant with research in psychoacoustics and in human learning, will be disappointed. Broadbent places his own research in an information-theory context and relates it to much of the significant research of others. Especially rewarding are experimental studies on the central effects of listening to two messages, on the assessment of human channel capacity by effects on simultaneous tasks, and on short-term and long-term storage capacity of the organism as revealed by reproduction of information put into the two ears simultaneously.

Broadbent attempts to encompass these and other experimental findings within what he calls a "filter theory." According to this view, the nervous system operates as a single communication channel having a limited capacity. Incoming information is selected in terms of certain common features (for example, intensity, pitch, spatial localization) of the sensory events and in terms of the (drive) states of the organism. The conditional probabilities among successive events are stored on a relatively long-term basis, the predictabilities between cues and reinforcing states of affairs being one important class of such conditional dependencies. A shift in selection from one class of sensory events to another takes time and is accompanied by "inattention."

This is a very concentrated book—little space is wasted on padding or on elaborating the obvious. The information-theory type interpretation seems more convincing when applied to psychoacoustic phenomena than when applied to learning phenomena (for example, extinction, spontaneous recovery, reinforcement). Much of the research reported was done under the aegis of military and industrial organizations, and the author tries to provide an interpretive theoretical framework. Opinions will vary as to the success of the attempt, but Broadbent's contribution to our empirical knowledge of auditory perception, storage, and reproduction under complex conditions will be appreciated by all readers.

CHARLES E. OSGOOD
Center for Advanced Study in the Behavioral Sciences and
Department of Psychology, University of Illinois

New Books

Advances in Biological and Medical Physics. vol. VI. Cornelius A. Tobias and John H. Lawrence, Eds. Academic Press, New York, 1958. 648 pp. $16.50. Contents: "Ion and water transport in stomach and intestine" (R. P. Durbin, Peter F. Curran, A. K. Solomon); "Artificial and induced periodicity in living cells" (E. Zeuthen); "Radiobiological aspects of the induction of lysogenic bacteria to produce phage with x-ray, gamma ray, and ultraviolet radiations" (H. Marcovich and R. Latarjet); "Cell studies with microspectrography" (B. Thorell); "Some aspects of the effect of ionizing radiation on tumors in experimental animals" (O. C. A. Scott); "Fallout from nuclear weapons tests" (C. L. Dunham); "Radiological contrast enhancing methods" (B. Jacobson and R. S. Mackay); "Quantitative measurement of regional circulation in the central nervous system by the use of radioactive inert gas" (W. H. Feygang, Jr., and L. Sokoloff); "Intense ultrasound in investigations of the central nervous system" (W. J. Fry); "Isotopic tracers in the study of diabetes" (S. A. Berson and R. S. Yalow); "Application of light scattering to biological systems: deoxyribonucleic acid and the muscle proteins" (E. P. Geiduschek and A. Holtzer); "Physical and chemical mechanisms in the injury of cells by ionizing radiations" (P. Howard-Flanders).

First Book of Grasses. The structure of grasses explained for beginners. Agnes Chase. Smithsonian Institution, Washington, D.C., ed. 3, 1959. 146 pp. $3.

General Chemistry. William H. Nebergall and Frederic C. Schmidt. Heath, Boston, 1959. 731 pp. $7.25.

The Gulf Stream. A physical and dynamical description. Henry Stommel. Univ. of California Press, Berkeley; Cambridge Univ. Press, London, 1958. 215 pp. $6.

Help for Ten Million. A manual for patients with arthritis, rheumatism and gout. Darrell C. Crain. Lippincott, Philadelphia, 1959. 251 pp. Paper, $1.45.

A History of Ophthalmology. George E. Arrington, Jr. M.D. Publications, New York, 1959. 191 pp. $4.

A History of Neurology. Walther Riese. M.D. Publications, New York, 1959. 225 pp. $4.

Hormones and Atherosclerosis. Proceedings of the conference held in Brighton, Utah, 11–14 March 1958. Gregory Pincus, Ed. Academic Press, New York, 1959. 500 pp. $13.50.

Index of Plants of North Carolina, with Reputed Medicinal Uses. Marion Lee Jacobs and Henry M. Burlage. Henry M. Burlage, 702 East 43 St., Austin, Tex., 1958. 333 pp.

Introduction to Chemical Engineering Thermodynamics. J. M. Smith and H. C. Van Ness. McGraw-Hill, New York, ed. 2, 1959. 502 pp. $8.75.

Modern Science and the Human Fertility Problem. Richard L. Meier. Wiley, New York; Chapman & Hall, London, 1959. 276 pp. $5.95.

The National Forests. Arthur H. Carhart. Knopf, New York, 1959. 301 pp. $4.75.

Oceanography and Marine Biology. A book of techniques. H. Barnes. Macmillan, New York, 1959. 218 pp. $7.

On Numerical Approximation. Proceedings of a symposium conducted by the Mathematics Research Center, U.S. Army, at the University of Wisconsin, Madison, 21–23 April 1958. Rudolph E. Langer, Ed. Univ. of Wisconsin Press, Madison, 1959. 472 pp. $4.50.

A Philosopher Looks at Science. John G. Kemeny. Van Nostrand, Princeton, N.J., 1959. 285 pp. $4.95.

Proceedings of the Symposium on Electronic Waveguides. New York, N.Y., 8–10 April 1958. Microwave Research Inst. Symp. Ser., vol. VIII. Jerome Fox, Ed. Polytechnic Press, Brooklyn, N.Y., 1958. 437 pp. $5.

Recognition of Diseases and Pests of Farm Crops. Ernst Gram, Prosper Bovien, Chr. Stapel. Published by the Danish Agricultural Information and Advisory Aids Service by Heffer, Cambridge, England, 1958. 128 pp. 35s.

Reprints

An Introduction to Fourier Methods and the LaPlace Transformation. Philip Franklin. Dover, New York, 1958. 289 pp. $1.75.

Introduction to Symbolic Logic and Its Applications. Rudolf Carnap. Translated by William H. Meyer and John Wilkinson. Dover, New York, 1958. 241 pp. $1.85.

Jordan. Its people, its society, its culture. George L. Harris. Grove Press, New York, 1959. 246 pp. $1.95.

Linear Groups with an Exposition of the Galois Field Theory. Leonard Eugene Dickson. Dover, New York, 1958. 312 pp. $1.95.

Of Love and Lust. On the psychoanalysis of romantic and sexual emotions. Theodor Reik. Grove Press, New York, 1958. 623 pp. $2.45.

Psychology of Personality. Six modern approaches. J. L. McCary. Grove Press, New York, 1959. 383 pp. $1.95.

Time's Arrow and Evolution. Harold F. Blum. Princeton Univ. Press, Princeton, N.J., ed. 2, 1959. 224 pp. $1.75.

The Value of Science. Henri Poincaré. Authorized translation with an introduction by George Bruce Halsted. Dover, New York, 1958. 147 pp. $1.35.