music in hospitals as well as occupational therapy and various forms of exercise and sports events: "Every well-organized hospital should have various devices for the occupation and amusement of patients, for example, newspapers, books, chess, cards, lotto, billiards." He urged the institution of a program of clinical and basic research on psychosomatic factors in therapy.

Another student of Botkin, V. P. Obraztsov (1849–1920) called attention to the close relationship between the disturbances of visceral and somatic functions, problems of referred pain, the neurasthenic heart, and the role of autosuggestion in cardiovascular disease.

This book represents an important contribution to the history of Russian medical practice and philosophy. It contains a great deal of material entirely unfamiliar to medical scientists in the Western world.

The book also demonstrates the lack of communication and of cross-fertilization of ideas between Russian and Western (particularly English-American) medical and biological laboratories and clinics and the resultant mutual ignorance and lack of appreciation of each other's achievements. Osler knew not of Botkin, nor Botkin of Osler; both would undoubtedly have profited from acquaintance with each other's ideas.

This lack of mutual understanding still persists and is evident in the over-all approach of Borodulin. In discussing the development by Pavlov, Bykov, Speranskii, and others of the Botkin-Sechenov concepts of cortical integration and of the living organism as a homeostatic unit, he seems to be unaware of the important contributions in this field by British and American physiologists. For example, the appearance of Sherrington's *The Integrative Action of the Nervous System* in 1906 is not mentioned. Nor is there any indication of familiarity with Fulton and Keller's demonstration of the principle of encephalization in their elegant publication *The Sign of Babinski—a Study of the Evolution of Cortical Dominance in Primates,* or with Fulton's extensive lobotomy studies in relation to behavioral problems in primates.

Studies related to the organism as a unit have occupied the center of attention of a number of investigators for many years and in many lands. Jacques Loeb analyzed some of these problems brilliantly in *The Comparative Physiology of the Brain and Comparative Psychology* (1902) and in his book *The Organism as a Whole* (1916). J. B. S. Haldane wrote in 1922: "The only way of real advance in biology lies in taking as our starting point, not the separated parts of an organism and its environment, but the whole organism in its actual relation to environment, and defining the parts and activities in this whole in terms implying their existing relationships to the other parts and activities."

The effects of emotions on body processes have been the subject of investigation and discussion by many scientists, from William Beaumont's *Experiments and Observations on the Gastric Juice and the Physiology of Digestion* (1833) to A. J. Carlson's *The Control of Hunger in Health and Disease* (1916), W. B. Cannon's *Bodily Changes in Pain, Hunger, Fear and Rage* (1920), and the excellent current studies conducted by Stewart Wolf and Harold Wolff and Hans Selye's extensive investigations on stress. As a matter of fact, observations on psychosomatic effects go back to antiquity. Maimonides, the famous Hebrew physician-philosopher of the 12th century, emphasized the importance of emotions in health and disease (letter to the Sultan Saladin). The appreciation and further development of scientific principles can best be achieved by maintaining a broad historical and geographic perspective.

This lack of communication is not, however, one-sided. British and American physiologists failed to appreciate and benefit from the contributions of Russian physiologists. As is pointed out so succinctly by Fulton in his *Frontal Lobotomy and Affective Behavior*: "Although the Russian School had a clear awareness of the importance of cortical representation of many visceral functions, neurologists and neurophysiologists in general were extraordinarily slow to appreciate the broad significance of these earlier disclosures."

The elucidation of the role of psychologic factors in the development of disease and the development of an integrative approach to medical research and practice could best be achieved not by periodic mutual "sniping" but by consistent attempts at closer communication and a development of mutual appreciation between Russian and Western medical scientists and practitioners.

SAMUEL A. CORSON
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Cours de Physique Générale. Electricité. A l'usage de l'enseignement superieur scientifique et technique. G. Goudet. Masson, Paris, ed. 6, 1956. 899 pp. Illus. Cloth, F. 5100; paper, F. 4500.

This large and well-appointed book is one of a series of advanced textbooks in general physics for university students. In addition to the material usually found in American textbooks for graduate students, it contains a considerable amount of descriptive material dealing with electric measurements, instruments, and machinery written in a more elementary style. Beginning with a brief introductory section on vector calculus and the mathematical treatment of periodic functions, it leads the reader through the classical theory of electrostatics, direct currents, magnetostatics, and quasi-stationary electromagnetic phenomena to the general formulation of Maxwell's equations and the theory of electromagnetic waves. In a final section, the author discusses the properties of charged particles, x-rays, atomic and molecular structure, elementary quantum mechanics, electric and magnetic properties of solids, and electron tubes and semiconducting devices.

The classical electromagnetic theory is developed in the conventional manner. The theorems are precisely enunciated, and the derivations are detailed enough to permit independent study. Many representative problems are carried to a complete solution, and Maxwell's equations are illustrated by many applications. On the other hand and in accordance with European practice, student exercises are not included. The mks system of units is used throughout.

Although the book does not seem to present new approaches to the study of its field, it is clear, comprehensive, and up to date. The typographic arrangement is excellent and makes it easy to follow the derivations.

I. ESTERMANN
Office of Naval Research

Parasites and Parasitism. Thomas W. M. Cameron. Methuen, London; Wiley, New York, 1956. 322 pp. $6.75.

This book departs from the point of view and emphasis found in most present-day textbooks of parasitology. It widens the concept of parasitism to include, in addition to parasitic animals, bacteria, fungi, spirochetes, viruses, and rickettsiae and includes among the animal parasites the parasitic annelids, crustaceans, mollusks, and vertebrates not usually included in parasitological textbooks. Moreover, *parasitism* is used in the wider sense of including the whole gamut of relationships from extreme pathogenicity to symbiosis. Parasitism is viewed as a biological phenomenon with examples chosen from fields widely separated systematically. Thus there is little emphasis upon the medical and veterinary aspects of parasitism, except by virtue of the fact that the parasites involved in producing disease in man and animals are often better known than the forms of little or no economic importance.

Although the discussion of parasitism

passes from one systematic group of parasitic forms to another, it is evident that the attempt has been made to utilize these systematic groups mainly to illustrate the complex phenomena of parasitism. The final fourth of the book is devoted to discussion of the principles, so far as they are known, of parasitism, infectious disease, distribution of parasites, control, and host specificity and evolution of parasites. Also included are an annotated bibliography, a classification of parasites, and a glossary and index.

This attempt to shift away from the vertical, systematic treatment of the subject to the more horizontal, functional approach represents a refreshing initial step in the much-needed change of emphasis from presentations of a bewildering array of seemingly unrelated complexity of relationships to a searching for the relating principles in these relationships.

CLAY G. HUFF
Naval Medical Research Institute

Geology and Ourselves. F. H. Edmunds. Philosophical Library, New York, 1956. 256 pp. Illus. $10.

F. H. Edmunds, long a member of the Geological Survey of Great Britain, writes clearly and simply on geology for the nonscientific layman in a style stripped of the usual geologic jargon. The first half of the book is given to a discussion of the elements of geology and its various fields of specialization, while the remainder discusses the significance of geologic factors in the world around us. The book is well done, but its distribution in the United States may be adversely affected by the fact that it draws almost exclusively on illustrations from the British Isles and because the book is rather expensive considering its purpose.

ROBERT C. STEPHENSON
American Geological Institute

Educating Spastic Children. The education and guidance of the cerebral palsied. F. Eleanor Schonell. Philosophical Library, New York, 1956. 242 pp. Illus. $6.

This book, which is divided into four parts, treats of the educational problems and evaluation of the educational difficulties arising from cerebral palsy.

The first part gives a general definition and classification of the various types and causes. A history of the growing interest in the condition follows and describes the progress, especially in America, Australia, and Great Britain.

Part two is concerned with the various surveys especially related to the Birmingham research project. The use of various intelligence scales as measures of intelligence specifically in the cerebral palsied is described, and estimates of intelligence as carried out by many surveys in the different countries are compared.

Part three deals with practical planning for educational facilities for these children and actual and suggested curriculums. Part four deals with psychological and social development, taking into consideration the limitations imposed on the child by his handicap.

This book is a valuable and well-written source of much needed information by teachers and all others dealing with the psychosocial development of the cerebral palsied child. It should stimulate far better understanding and facilities for education of cerebral palsied children.

The only criticism that can be made of this book, in my opinion, is with regard to the title. The term *cerebral palsy* has practically superseded *spastic paralysis* when used for the whole group in America, and such change is occurring more and more in Great Britain. The author mentions in her preface that she is using the term to include the whole group, but the confusion which has arisen from using this term, except specifically for spastics, is the reason that *cerebral palsy* is being more widely used now.

WINTHROP M. PHELPS
Baltimore, Maryland

New Books

Advances in Carbohydrate Chemistry. vol. 11. Melville L. Wolfram, Ed. Academic Press, New York, 1956. 465 pp. $11.

Metallurgical Analysis by Means of the Spekker Photoelectric Absorptiometer. F. W. Haywood and A. A. R. Wood. Hilger & Watts, London, ed. 2, 1956 (order from Jarrell-Ash Co., 26 Farwell St., Newtonville 60, Mass.). 292 pp. $8.50.

Cold Spring Harbor Symposia on Quantitative Biology. vol. XX, *Population Genetics: The Nature and Causes of Genetic Variability in Populations.* Biological Laboratory, Cold Spring Harbor, N.Y., 1955. 346 pp. $8.

Unit Operations of Chemical Engineering. Warren L. McCabe and Julian C. Smith. McGraw-Hill, New York, 1956. 945 pp. $10.50.

Advances in Electronics and Electron Physics. vol. VIII. L. Marton, Ed. Academic Press, New York, 1956. 562 pp. $13.

Hi-Fi from Microphone to Ear. Modern sound-recording and reproduction technique. G. Slot. Philips Technical Library, Eindhoven, Netherlands, 1956. 169 pp.

Ancestors and Immigrants. A changing New England tradition. Barbara M. Solomon. Harvard University Press, Cambridge, 1956. 276 pp. $4.75.

Theory of Approximation. N. I. Achieser. Translated by Charles J. Hyman. Ungar, New York, 1956. 307 pp. $8.50.

An Encyclopaedia of the Iron and Steel Industry. Compiled by A. K. Osborne. Philosophical Library, New York, 1956. 558 pp. $25.

Momentum Transfer in Fluids. Wm. H. Corcoran, J. B. Opfell, B. H. Sage. Academic Press, New York, 1956. 394 pp. $9.

Elements of Pure and Applied Mathematics. Harry Lass. McGraw-Hill, New York, 1956. 491 pp. $7.50.

Die Technischen Anwendungen der Radioaktivitat. Engelbert Broda and Thomas Schonfeld. Verlag Technik, Berlin, 1956. 313 pp.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

The St. Anthony Falls Multi-Purpose Test Channel. Tech. Paper No. 17, Ser. B. Lorenz G. Straub and C. E. Bowers. University of Minnesota, Minneapolis, 1956. 19 pp.

The Arzberger Site, Hughes County, South Dakota. Occasional Contributions, No. 16. Albert C. Spaulding. Museum of Anthropology, University of Michigan, Ann Arbor, 1956. 173 pp. $3.50.

Traffic Assignment by Mechanical Methods. Highway Research Board Bull. 130. National Academy of Sciences–National Research Council, Washington, 1956. 77 pp. $1.50.

A Revision of the Genus Nissolia. Contributions from the U.S. National Herbarium, vol. 32, pt. 2. Velva E. Rudd. Smithsonian Institution, Washington, 1956. 34 pp.

Klamath Prehistory. The prehistory of the culture of the Klamath Lake Area, Oregon. Trans. of the American Philosophical Society, New Series, vol. 46, pt. 4. L. S. Cressman. American Philosophical Society, Philadelphia, 1956. 139 pp. $2.

Widening and Resurfacing with Bituminous Concrete. Highway Research Board Bull. 131. National Academy of Sciences–National Research Council, Washington 25, 1956. 46 pp. $0.90.

A Human Engineering Bibliography. Ivan N. McCollom and Alphonse Chapanis. San Diego State College Foundation, San Diego, Calif., 1956. 128 pp.

Erinaceidae from the Miocene of East Africa. Fossil Mammals of Africa, No. 11. P. M. Butler. British Museum (Natural History), London, 1956. 75 pp. £2.

Culture and the Structural Evolution of the Neural System. James Arthur Lecture on the Evolution of the Human Brain, 1955. Fred A. Mettler. American Museum of Natural History, New York, 1956. 57 pp.

Expanding Resources for College Teaching. A report of the Conference on College Teaching sponsored by the American Council on Education, 19–20 Jan. 1956. Charles G. Dobbins, Ed. American Council on Education, Washington, 1956. 137 pp. $1.50.