

work; of it he wrote, "Insight such as this falls to one's lot but once in a lifetime." It and the *Three Essays on the Theory of Sexuality* were the only two books that he revised as new editions were published. Chapter VII on "The psychology of the dream processes" is the basis for his metapsychology, knowledge of which is essential to any understanding of the theoretical aspects of his work.

This volume is not an easy one to read. It is based on the eighth (1930) edition, the last published in Freud's lifetime. It is in effect, however, a variorum edition; it lists the alterations introduced since the first issue, and consequently contains numerous explanatory notes. In an effort to convey more precisely the exact meaning of the original text, the translations of some of the dreams are awkward, but this is necessary if one is to understand the import of the interpretations that follow. Despite this stiffness and the interruptions in reading caused by the numerous annotations, the serious student will find this a rewarding book. A cursory comparison of Chapter VII in this volume with that in Brill's translation, which appeared in 1931, reveals how much more Strachey has made available to us. Together with the wealth of material in the recently published correspondence with Wilhelm Fliess, this volume gives us an understanding of Freud's first neurophysiological theory of the working of the mind and its subsequent replacement with a psychological system that followed the same general pattern.

There is an excellent general index, an index of the dreams referred to in the text, a bibliography of all works mentioned in the text, and another of important works on dreams (not referred to by Freud) published before 1900.

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**Harmonic Analysis and the Theory of Probability.** Salomon Bochner. University of California Press, Berkeley, 1955. viii + 176 pp. \$4.50.

Except for expressions of thanks and credit, the entire preface of this book reads as follows: "This is a tract on some topics in Fourier analysis of finitely and infinitely many variables and on some topics in the theory of probability and the connection between the two is a very intimate one on the whole." To explain a little more fully, some topics in Fourier analysis are treated that have no special reference to the theory of probability—generalized theta relations and zeta functions are especially noteworthy examples. But almost all the topics in the theory of probability are applications of Fourier

analysis. The connection between the two fields is the familiar one arising out of the Fourier transformation of distributions of real-valued and vector-valued random variables.

Many of the topics presented are original with Bochner and either appear here for the first time or are taken from his journal publications; and the treatment of all of them is marked by his originality. Indeed, the tract can fairly be described as a review and extension of a certain part of the author's work in Fourier analysis.

The tract is addressed to professional mathematicians and is, accordingly, too technical to be accessible to other scientists, with few exceptions. It is well, but compactly, written. The workmanship demonstrates and communicates great power and knowledge, so the tract abundantly repays the intensive study required to read it with understanding.

There are many typographic errors and a few errors that are a little more substantial. Their cumulative effect is some impediment.

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**Neurochemistry.** The chemical dynamics of brain and nerve. K. A. C. Elliott, Irvine H. Page, and J. H. Quastel, Eds. Thomas, Springfield, Ill., 1955. xii + 900 pp. Illus. \$19.50.

In the past, brain was often considered as a morphological and functional unit by physiologists and pathologists. The integration of biochemical research, however, with research on brain structure and function is a recent development, which, for its very obvious advantages, cannot be welcomed enough. Several books and meetings during the last few years are stimulating proof that neurochemistry has come of age as an independent field of research. One of the very good and most ambitious of these books is *Neurochemistry, the Chemical Dynamics of Brain and Nerve*. Reviews in a fast-developing field are not an easy task, but this book fulfills its task admirably. Such a book is doubly important, since the information in this field is scattered in biochemical, physiological, pharmacological, neurological, histological, and psychiatric journals, to mention a few.

The two shortcomings of this book are fully realized by the editors. Because the publication took 4 years, and despite the fact that many chapters are revised, many recent advances are left out. The other shortcoming, probably a necessary fault of most such books, is, to quote the editors, that "a book of this kind can never

be fully comprehensive." I and probably a great many other people in the field would welcome a second volume of the book in which subjects would be discussed that, for reasons of keeping down the cost or size, were treated very concisely or omitted. For example, the *in vivo* metabolism of the brain, hallucinogens, the new tranquilizers, serotonin and so forth, are not discussed at all; chapters on lipids, the blood brain barrier, the metabolism of proteins and amino acids, and phosphorus metabolism are rather sketchy.

The 32 chapters of the book cannot all be mentioned here. The central importance of carbohydrate metabolism is well treated in several chapters. K. A. C. Elliott writes on tissue respiration, H. Weil-Malherbe on oxidation mechanisms, R. A. Peters on pyruvate metabolism, and E. Racker on glycolysis. The acetylcholine and cholinesterase systems are reviewed by J. H. Quastel, D. Nachmansohn, A. S. V. Burgen, and F. C. MacIntosh in their respective chapters, in which there is very little duplication of the different approaches to the problem. Glutamic acid and glutamine are clearly reviewed by H. Waelsch, and, in a short article, nucleic acids and proteins are discussed by H. Hyden.

The chemical constituents of brain and the biochemistry of demyelination are discussed by R. J. Rossiter. S. S. Kety discusses blood flow, W. M. Sperry the biochemistry of early development, and J. H. Holmes and D. B. Tower intracranial fluids. Other chapters deal with noradrenaline, steroid hormones, electrolytes, neurotropic drugs, convulsive conditions, and nutritional disorders. Mention should be made of the very interesting reviews of J. H. Quastel on narcosis and of L. S. Penrose on inborn errors of metabolism.

Books of this scope have dual function. They not only review the work that has been done in the field but also, by pointing out the work that has not yet been done, stimulate further research. *Neurochemistry* fulfills this dual role remarkably well.

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**Instruments for Measurement and Control.** Werner G. Holzbock. Reinhold, New York; Chapman & Hall, London, 1955. 371 pp. Illus. \$10.

This is a descriptive book for plant technicians and practicing engineers. Written by a development engineer of the Askania Regulator Company, it attempts "to acquaint the reader with the types of instruments available for the measure-