

BOOKS

CEREBRAL MECHANISMS IN BEHAVIOR

The Hixon Symposium

Edited by Lloyd Jeffress

John Wiley and Sons, N. Y. \$6.50

*Reviewed by John S. Stamm
Research Fellow in Biology*

HOW THE BRAIN functions has always been a great puzzle to both laymen and experts. It is interesting, therefore, to see what a group of 19 outstanding scientists had to say on this subject when they met at the California Institute of Technology in the fall of 1948. These men, who came from several different disciplines (mathematics, chemistry, physiology, neurology, psychology and psychiatry) shared their research findings and theoretical formulations during the week of this symposium. This book contains six of the seven papers which were presented there, and records of the discussions, which have been ably edited by Lloyd Jeffress, who was Hixon Visiting Professor here in 1947-48.

Unfortunately, there is no introduction to the symposium, so that the reader is never quite certain what purposes and goals the participants had set for themselves. Since, moreover, they talk mainly to one another, the uninitiated reader will find it difficult at times to follow the proceedings. This difficulty has been increased by the order of presentation of the papers (the first three are almost entirely of a theoretical nature) and only in the latter part of the book does one find well organized presentations of the more factual material.

John von Neumann, the mathematician, starts the symposium off by presenting a logical theory of automata which is applicable both to machines (mostly high speed computing ones) and to the central nervous system. Warren McCulloch then discusses "Why the Mind is in the Head," but never really explains why it is, unless one is satisfied with his statement that "There (in the head) and only there are hosts of possible connections to be formed as

time and circumstances demand." K. S. Lashley presents a conceptual scheme of how the brain might perform such complex temporal tasks as speech and writing. Wolfgang Koehler gives an interesting presentation of his work on figural after-effects, then theorizes about his "field model" of the brain, and finally presents some rather preliminary findings of slowly changing electrical brain potentials. Of these four largely theoretical papers only von Neumann's presentation gives a coherent and logical formulation of a brain model.

The remaining two papers make more factual contributions to the symposium. Heinrich Kluever summarizes his work of many years on the functions of the occipital and temporal lobes and he marshals a substantial amount of evidence from psychological, physiological, and anatomical findings. Ward Halstead, in his paper on "Brain and Intelligence," demonstrates how psychometric techniques can be applied to

CONTINUED ON PAGE 8



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BOOKS CONTINUED

the study of brain lesions and then defines the intellectual functions of the prefrontal lobes.

About two-fifths of the book is devoted to verbatim accounts of the discussions which followed the presentation of each paper, and of two "General Discussion" sessions. During these meetings the participants, particularly those who did not present papers, made many valuable contributions to the symposium, and only rarely was an attempt made to integrate and summarize these.

Again one raises the question of the goals of the symposium. The reader will be disappointed if he expects to find final answers about brain mechanisms, or even if he looks for wide areas of agreement on these extremely difficult questions. He will, however, be well rewarded if he expects to find contributions from many different sources which are otherwise not available in one volume.

One is impressed by the tremendous amount of research that has been carried out during the last 50 years, which has yielded a substantial amount of information on the structure of the nervous system, and has given us some knowledge about its physiological function and its relation to perceptual and intellectual phenomena. On the other hand, very little is known about cerebral activity in "higher" psychological processes such as motivation, personality integration, and social interaction. Finally, throughout the symposium one is impressed by the complexity of the problem. The absence of final answers does not seem as important as does the tremendous progress which has been made toward our understanding of cerebral mechanisms in behavior.

AN INTRODUCTION TO AESTHETICS
by Hunter Mead
Ronald Press, New York \$4

THIS VOLUME, by Caltech's Professor of Philosophy and Psychology, *Hunter Mead*, is a well-written elementary presentation of aesthetics as a pleasurable absorption in the perceptual aspects of phenomena.

The central theme of the book is the aesthetic experience itself. This experience is carefully taken apart and looked at from various angles: what it is, what its significance is, and how it is related to various other important human experiences. About one third of the book is devoted to

kinds of aesthetic value and their sources. Three kinds of value are found in aesthetics: material, formal and associational. Of these three, formal values are regarded as central.

The final section presents various philosophies of art—as representation, as emotional expression, as formal design, and as social evaluation and influence. The author unifies these viewpoints with his own interpretation of art as integration. To anyone wishing a clear, readable guide to aesthetics, this book should prove both interesting and rewarding.

INVERTEBRATE FOSSILS
by Raymond C. Moore,
Cecil G. Lalicker, and
Alfred G. Fischer
McGraw-Hill, New York \$12.00

Reviewed by Charles E. Weaver
Research Associate

AS STATED BY the authors, *Invertebrate Fossils* was planned, not as a reference work, but as an accompanying textbook to supplement lectures, discussions and laboratory work in a comprehensive introductory course in invertebrate paleontology, offered as a part of the training of those desiring to become professional geologists.

The general plan and organization of the book is based largely on a consideration of the procedures followed by the authors over a period of years in presenting the fundamental principles of paleontology to beginning students in university courses, and on a critical appraisal of the subject as outlined in the older and contemporary textbooks. Realizing that many students who begin the study of past life have never had previous courses in biology, the authors have tried to present the necessary biological aspects of living organisms in an understandable manner, in order to point out the morphological relationships of the skeletal remains of fossils to former existing soft parts.

The reviewer gains the impression that this has been accomplished successfully. The book should be welcomed by those engaged in teaching the fundamental principles of invertebrate paleontology for professional purposes, as well as by students, who have before them the significant information concerning fossils, including a clearly defined technical vocabulary, accompanied by explanatory line drawings.

ENGINEERING IN PUBLIC HEALTH
by Harold E. Babbitt
McGraw-Hill, New York \$8.00

Reviewed by Jack E. McKee
Associate Professor,
Sanitary Engineering

IN TENDED TO MEET the needs of the engineer practicing in the field of public health, this book introduces the reader to the myriad subjects involved in this profession. Professor Babbitt has done a remarkable job in assembling, evaluating, and condensing the abundant literature in each subject, with the result that the book touches lightly on all phases of this broad field without elaborating on any. Fortunately, the condensed material is thoroughly documented and the references at the end of each chapter are numerous.

In compressing so much material into 550 pages, the author chose to omit discussions of fundamentals in the major branches of science and engineering. For example, the practice of disinfection by chlorine is discussed at several places in the book, but nowhere is the theory of chlorination presented. As a textbook for students, therefore, this new volume has many deficiencies. As a handy reference of condensed descriptive material, however, it should be extremely valuable to the practicing engineer.

PERSONNEL ADMINISTRATION
by William W. Waite
Ronald Press, New York \$7.00

Reviewed by L. Robert Sorensen
Assistant Director, Industrial
Relations

MR. WAITE'S book is intended primarily as a college text, but would be helpful to any person starting in the field of personnel, and would be useful as a ready reference for the more experienced personnel administrator.

The reader won't discover anything particularly new here, but will find that many ideas, theories, and methods have been collected from numerous sources and well organized under one cover.

Personnel Administration presents a comprehensive coverage of the field in an informal and practical manner.