

BOOK REVIEWS

The Physiology of Nerve Cells. By John Carew Eccles. (Pp. ix + 270, 30s.; \$5.75) London: Oxford University Press; Baltimore: The Johns Hopkins Press. 1957.

One of Sherrington's notions was that every neurone in the central nervous system functions as a convergence point and "common path" for impulses from many sources. Its output is graded, over a wide range, by the shifting balance of excitation and inhibition generated by those impulses. The early experiments used muscular contraction to measure the output of the "final common path", that is, of the ventral horn cells. Professor Eccles was a collaborator of Sherrington's in the latter phases of that work, and is now an acknowledged leader in the direct microphysiological investigation of neurone and synapse which is its modern outcome. In his book *The Neurophysiological Basis of Mind* he reviewed progress up to 1953. For his new book, whose title is not, like its predecessor's, misleading, there has been much to add. So rapid is the advance that in the interval between the delivery of the Herter Lectures at Johns Hopkins in 1955, and the writing of this book which is based upon them, fresh discoveries have had to be assimilated.

Eccles' own research has centred on the ventral horn cells and on the synapses formed upon them by the simplest reflex pathways of the spinal cord. Simplified assumptions treat the cell as a globule invested by a plasma membrane and immersed in an infinite volume of tissue fluid. Experimental alteration of the ionic composition of the cell interior has been used to analyse the effects produced by excitatory and inhibitory synapses on the membrane potential. Experimental results from other central neurones and from neurones of invertebrates are collected together to fill out the picture.

Dale's principle, that all the synaptic endings of a single neurone should liberate the same chemical transmitter, has been shown to be true in the case of the ventral horn cells, whose peripheral terminals and intraspinal axon collaterals are all cholinergic. The discovery that there is an interneurone in the simplest inhibitory pathway in the spinal cord is taken to mean that the dorsal root fibres liberate excitatory transmitters only; inhibitory action necessitates the interposition of one or more interneurones to produce inhibitory transmitter substances. Acetylcholine is the excitatory transmitter of the recurrent collaterals of the ventral horn cells, but in spite of rigorous testing, the other central transmitters are still unidentified.

The book, although clearly written, is strenuous reading, and is for the specialist in biophysics and neurophysiology. Those who have long admired the author's achievements will envy once again the intellectual energy that has brought forth such a wealth of detailed hypotheses. They will not fall into the error of supposing

that these are intended as final explanations, and will recognize their power to stimulate new research.

C. G. PHILLIPS

Brain Mechanism and Drug Action. A Symposium: Fourth Annual Scientific Meeting of the Houston Neurological Society, Texas Medical Center, Houston, Texas. Compiled and edited by William S. Field. (Pp. ix + 147; illustrated. 32s. 6d.) Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1957.

This small book will be of interest to workers in many branches of the neurological sciences for although its subject has not been tackled at the fundamental cellular level it has a wide field of application. The first two chapters are devoted to the reticular formation on which drug activity is presumed if they evoke an arousal response in the E.E.G. of curarized unanaesthetized animals and not in "cerveau isolé" preparations. In a chapter that is a model of clarity of illustration, Marrazzi describes the effects of certain drugs on synaptic transmission in autonomic ganglia, as a result of which he postulates a cholinergic excitation and adrenergic inhibition for synapses at all levels within the central nervous system. This is shown to be true for a disynaptic association pathway connecting the optic cortices of the cat across the corpus callosum. The action of some tranquillizing drugs on the central afferent pathway in the curarized animal is reported by Eva and Keith Killam who also studied the effect on rhinencephalic seizures induced by electrical stimulation of the fornix. In a short chapter, Roger Guillemin presents experiments on A.C.T.H. release in response to stress and the effect of chlorpromazine, reserpine, and serotonin on this reaction. Finally, Joseph Brady describes methods for evaluating the effects of drugs on behaviour. This he prefaces by a short historical review, among the words of which are scattered 157 references. The book is completed by David McK. Rioch whose summary of the proceedings is both clear and sensible.

This is a well illustrated and nicely produced book in the Thomas tradition.

Fundamentals of Clinical Neurophysiology. By Paul O. Chatfield. (Pp. xiv + 392; 151 figures. 63s.) Springfield, Illinois: Charles C. Thomas. 1957.

This is a valuable book for students of neurology who require an up-to-date summary of the physiology of the nervous system and the special senses. The contribution of clinical studies in man to physiological knowledge does not, however, receive the attention it deserves.

Mental Deficiency. By J. E. Wallace Wallin. (Pp. xv, + 200; \$5.00.) Brandon, Vermont, U.S.A.: *Journal of Clinical Psychology*. 1956.

This book is not a comprehensive survey of mental deficiency, but, as the subtitle indicates, discusses mental deficiency "in relation to problems of genesis, social and occupational consequences, utilization, control, and prevention". It is a supplement to the author's *Children with Mental and Physical Handicaps and Education of Mentally Handicapped Children*.

In this volume various topics not discussed in his other books are treated in detail and there are chapters on "The Fecundity of the Mentally Deficient", "The Relation of Mental Deficiency to Defective Progeny", "The Relation of Gene Injury to Mental Deficiency", "The Relation of Mental Deficiency to Criminality and Sex Delinquencies", "The Socio-occupational Efficiency of Mental Deficients and Alcoholism", and "The Ultimate Aims of Constructive Work in the Field of Mental Deficiency and Retardation".

The author has been giving courses to undergraduates and graduates since 1912 and his vast experience and wide reading are evident in every page of this valuable book. He has much sympathy with mental defectives and approaches their problems in a humanitarian manner. He thinks that with suitable training many higher grade defectives can find a useful place in society and that protection can reduce the problem of the criminality of the mental defective. These questions are at all times discussed impartially and with scientific objectivity and the author never allows his humanitarianism to degenerate into sentimentality.

The author's belief that the book will serve as a work of reference for those interested in the problems discussed in it is likely to be realized. The references are comprehensive and, though the material is more applicable to American than to British practice, references from the British literature receive their fair share of attention. To those interested in mental deficiency this is an invaluable book.

Der Wahnkranke im Lichte alter und neuer Psychopathologie. By Kurt Kolle. (Pp. 56. DM 4.80.) Stuttgart: Georg Thieme Verlag. 1957.

In earlier work the author has concerned himself with the various forms of delusional psychoses, which he has analysed by careful follow-up studies and enquiries into genetic factors in the patients' families. This work still represents an important and valid contribution to psychiatric nosology. The present small book contains aphoristic remarks and critical sidelights on the problem of delusional illness, ideas which have been used by the author for a recent series of guest lectures in Zürich. Professor Kolle devotes the main part of his discussion to the attempts of European authors at solving the question of the origin of delusions by psychological or philosophical considerations. He goes some way in following the workers who explain paranoid ideas as the result of the patient's life history, his unconscious desires,

and by similar interpretations; but he is finally compelled to emphasize the part of disturbed cerebral function underlying the deviation of thought called delusion.

Medical Research : A Mid-century Survey. The American Foundation. (Pp. 765, Vol. I; pp. 740, Vol. II. 105s.) London: J. & A. Churchill; Boston and Toronto: Little, Brown & Co. 1956.

This publication from the American Foundation provides a survey of certain aspects of medical research. Volume I consists chiefly of an account of the many types of organization which are concerned, at least partly, with research which might bear on medical problems. Volume II contains nine chapters devoted to specific medical problems, such as cancer and hypertension. The only chapters concerned with the nervous system are those on alcoholism and on schizophrenia. This last chapter shows that research workers on schizophrenia are still groping ineffectively in the search for clues.

Atlas of Roentgen Anatomy of the Skull. By Lewis E. Etter. (Pp. xv + 215; 237 plates. 106s.) Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 1955.

This book gives an outline of the normal radiological anatomy of the skull. It is clearly produced, with diagrams and photographs of the skull bones juxtaposed to the radiographs to illustrate and emphasize the radiological appearance. It is an excellent introduction to skull radiography for the neophyte; and the more experienced radiologist may also find it occasionally useful in referring to some point of normal anatomy. The definition and clarity of the radiographs reproduced are generally excellent, though those in the special section on the newborn skull are not so successful.

The Sequelae of Amputation. By Keith C. Bradley. (Pp. 236. A. 10s.) Trustees of the Services Canteens Trust Fund: c/o Australia House, London.

In 1949 the Trustees of the Services Canteens Trust Fund decided to support research into the painful sequelae of amputation, and the writer of this book reports the results of his researches which he carried out in many countries. The result is an authoritative and well-written monograph which should be read by all interested in the subject.

Journal of Mental Deficiency Research

The first number of this journal, sponsored by the National Society for Mentally Handicapped Children Ltd., will appear in the spring of 1957. The journal is administered by an Advisory Committee under the

Chairmanship of Professor L. S. Penrose, with Dr. B. W. Richards as Editor.

Articles on all aspects of mental deficiency will be included, but there will be a medical bias and a high proportion of available space will be allotted to papers reporting the results of original research.

The journal will appear twice a year in the first instance and will become quarterly should this be justified by the quantity and quality of subject matter submitted. The journal will cost 7s. 6d. per number, or one dollar fifty cents.

Subscriptions should be forwarded to: **The Publishing Manager, Mr. A. Highfield, 10 Shendon Way, Sevenoaks, Kent**, and enquiries and contributions to: **Dr. B. W. Richards, St. Lawrence's Hospital, Caterham, Surrey**.

Foundations' Fund for Research in Psychiatry

The Foundations' Fund for Research in Psychiatry wishes to announce that October 15, 1957, is the next deadline for the submission of applications for research fellowships and research teaching grants in psychiatry, psychology, sociology, neurophysiology, and other sciences relevant to mental health. Interested persons and departments are invited to write for details to:

Foundations' Fund for Research in Psychiatry,
251 Edwards Street,
New Haven 11, Connecticut.

Correction.—The following corrections should be made in the paper entitled "The Recurrence of Intracranial Meningiomas after Surgical Treatment" by Donald Simpson, published in the February issue (20, 22).

PAGE 25, column 1, line 49: for Fig. 1 read Table II.

PAGE 31, column 1, line 23: omit the words "Case 6 in Table V of Linell's series".

PAGE 32, the legend to Fig. 12 should read: Pulmonary metastasis from the same tumour.

(a) Haematoxylin—Van Gieson \times 70. (b) Haematoxylin and eosin \times 160.

PAGE 33, the legend to Fig. 13 should read: A fibroblastic meningioma appearing to be of very rapid growth.

(a) Haematoxylin—Van Gieson \times 470. (b) Reticulin \times 470.

The legend to Fig. 14 should read: An angioblastic meningioma of the Sylvian fissure, clinically benign.

(a) Haematoxylin—Van Gieson \times 210. (b) Reticulin \times 210.

PAGE 34, the legend to Fig. 15 should read: An angioblastic meningioma of the cerebral convexity, also clinically benign.

(a) Haematoxylin and eosin \times 210. (b) Reticulin \times 210.

BOOKS RECEIVED

(Review in a later issue is not precluded by notice here of books recently received.)

An Atlas of Muscle Pathology in Neuromuscular Diseases. By J. Godwin Greenfield, G. Milton Shy, Ellsworth C. Alvord, and Leonard Berg. (Pp. ix+104; illustrated. 45s.) Edinburgh and London: E. & S. Livingstone. 1957.

Les Tumeurs Frontales. Edited by Jacques Boudourques and Joel Bonnal. (Pp. 243; illustrated.) Paris: Masson.

Modern Trends in Neurology (Second Series). Edited by Denis Williams. (Pp. xi+350+Index; 80 figures. 72s. 6d.) London: Butterworth. 1957.

The Early Diagnosis and Treatment of Acoustic Nerve Tumors. By J. Lawrence Pool and Arthur A. Pava. (Pp. viii+161; 33 figures. 42s.) Oxford: Blackwell; Springfield (Illinois): Charles C. Thomas. 1957.

Spinal Cord Compress. By I. M. Tarlov. (Pp. xiv+147; 41 figures. 57s. 6d.) Oxford: Blackwell; Springfield (Illinois): Charles C. Thomas. 1957.

Schizophrenia: Somatic Aspects. By various authors, edited by Derek Richter. (Pp. viii+180; illustrated. 40s.) London and New York: Pergamon Press. 1957.

Instinct in Man: In the Light of Recent Work in Comparative Psychology. By Ronald Fletcher. (Pp. 348. 40s.) London: Allen & Unwin. 1957.

Perceptual Processes and Mental Illness (Maudsley Monographs No. 2). By H. J. Eysenck, G. W. Granger, and J. C. Bregelmann. (Pp. 144. 25s.) London: Chapman & Hall. 1957.

The Physiology of Nerve Cells. By John Carew Eccles. (Pp. ix+270; 80 figures. 30s.) London: Oxford University Press. 1957.

Précis de Biologie Humaine. By Paul Chauchard. (Pp. xii+403; 59 figures.) Paris: Presses Universitaires de France. 1957.

An Introduction to Electromyography. By Fritz Buchthal. (Pp. 43; 8 figures.) Copenhagen: Gyldendals Presseafdeling. 1957.

Kraepelin und Freud. By Kurt Kolle. (Pp. 88. DM7.60.) Stuttgart: Georg Thieme. 1957.)

An Introduction to Psychopathology. By D. Russell Davis. (Pp. vi+388. 30s.) London: Oxford University Press. 1957.

Brains and Consciousness. By Hartwig Kuhlbeck. (Pp. 348; 22 figures. Sw.frs. 34.60.) Basel: S. Karger. 1957.

Pain and Pleasure. By Thomas S. Szasz. (Pp. xvi +301. \$5.50.) New York: Basic Books. 1957.

Hospital Treatment of Alcoholism. By Robert S. Wallerstein and Associates, with an Introduction by Karl A. Menninger. (Pp. x+212. \$5.00.) New York: Basic Books. 1957.