

the thalamic and pulvinar structures, for these can not only affect speech but also old motor skills. This is particularly seen in deep wounds of the left posterior parietal region, which are followed by apraxia of both the right and left limbs. Current hypotheses on memory mechanisms are discussed, and the possibility is raised that the preservation of old memories is not a matter of static storage, but of the continual spontaneous activity of the neurones.

This monograph will be of interest to all concerned with language functions. It is well written, but in proportion to the amount of space devoted to individual case histories, the final chapter summarizing the observations and propounding the author's conclusions is somewhat brief.

MURRAY A. FALCONER.

Phosphorus Metabolism of the Brain. By P. J. HEALD. Pergamon Press, 1960. Pp. 195. price 42s.

This is a critical assessment of the collected work on phosphorus metabolism in the brain up to January 1959 and divides naturally into *in vitro* and *in vivo* studies followed by a section on analytical methods. The book is written primarily for biochemists interested in this field and not for clinicians. However, there is a short chapter entitled "General Comments" which gives a good general survey of the subject and the difficulties involved in the *in vivo* study of phosphorus metabolism including those using radioactive tracer techniques.

The Hypothalamus of the Cat. By RUTH BLEIER. The Johns Hopkins Press, Baltimore, 1961. Pp. 109. Price £6.

The hypothalamus is a region of the brain which, at the present time, is yielding amazingly rich rewards to the experimental worker. The importance of this small and ancient part of the brain, with cerebral connexions which are so widespread, is still insufficiently realized by many psychiatrists. It is forgotten that messages, nervous or humoral, continually leave this advanced headquarters to direct the activity of the greater part of the endocrine and other glands of the body. Probably there are many patients suffering from a mild degree of Simmonds' disease resulting from a head injury which has damaged the pathways from the hypothalamus. Unfortunately as yet remarkably little work has been done on the pathology of the hypothalamus in human cases, but this reviewer believes that when proper studies are made much valuable information will be obtained.

Meanwhile, experimental work can only progress when aided by first rate atlases like Dr. Bleier's. This volume is to the experimentalist what the Pilot's Guide to the English Channel is to the navigator—indispensable. It will take its place with the great classic atlases such as those of Winckler and Potter, and of Clarke and Horsley. It is beautifully produced and the illustrations are clearly marked and a joy to use.

For the real enthusiast there is a small subsection on the hypothalamus of the lion and the tiger, but this reviewer feels that he will use this section rather less than he will use the rest of the atlas.

This splendid book should be on the shelves of all those interested in the hypothalamus and both author and publishers are to be congratulated on producing an extremely useful and beautiful book.

PETER DANIEL.

The Nature of Sleep. A Ciba Foundation Symposium. Edited by G. E. W. WOLSTENHOLME, O.B.E., M.A., M.B., M.R.C.P., and MAEVE O'CONNOR, B.A. London: J. & A. Churchill, 1961. Pp. 416. Price 50s.

Considering the large number of years we all spend asleep during our lives and considering, too, how frequently we are faced with clinical disturbance of sleep, remarkably little is known about the phenomenon. The organizers of this symposium are to be congratulated on their choice of subject and upon the speed and skill with which the material has been put before the public.

Inevitably the contributions lean heavily towards electro-physiology: 12 out of 18 can be said to be predominantly EEG. Moruzzi postulates several groups of plurisynaptic neurones in the lower brain stem exerting on the EEG, and perhaps on behaviour, an influence opposite to that of the reticular activating system. Bremer considers the way in which sensory activity may be influenced at the cortex by the state of the activating system and multiple microelectrode work is much in evidence, for example in the papers of Verzeano and Negishi and of Creutzfeldt and Jung, who plotted the electrical spread of sleep and arousal patterns. Other electrical papers include unusually interesting ones by Jouvet, who describes two types of sleep activity, telencephalic ("Neosleep") and rhombencephalic ("archisleep") arising from different systems and Gastaut and Bert who investigate the hypnotic effect of repeated sensory stimulation and draw conclusions for industrial and road design, and for the detection of those persons especially reactive to the phenomenon. Oswald *et al.* show ingeniously that responses during sleep depend on the significance of the stimuli, indicating a high degree of discrimination within the sleeping human cortex. Female voices, interestingly, proved the more effective arousers than male ones in both sexes. Brief but full of interest are two contributions on hibernation and upon sleep under arctic conditions, and those unfamiliar with the work will find Kleitman's survey of the research on eye-movements, dreaming and dream deprivation the most fascinating in the book. Vistas of new knowledge open up here. Finally, Kety points to the little that is known of the cerebral biochemistry of sleep. As an account of experimental work, the omission of a pure psychoanalytic contribution on sleep and dreams is quite excusable but perhaps a place might have been found for an up-to-date clinical review of sleep disturbance.

RICHARD FOX.

Introduction to Clinical Electro-Encephalography. By R. R. HUGHES, M.R.C.P.
Published by John Wright & Sons, 1961. Pp. 118. Price 30s.

Clinical Electroencephalography. By L. G. KILOH, M.D., B.Sc., M.R.C.P., D.P.M.
and J. W. OSSELTON, B.Sc. Published by Butterworths, 1961. Pp. 135. Price 50s.

In the early years after the war several introductory books about electroencephalography were written, chiefly in the United States and in Europe. Since then there has been none until these two books, published almost simultaneously, from either side of the Pennines. The scope of the two books is similar, but the book by Kiloh and Osselton is a good deal more detailed, and rather better illustrated. It also contains a number of references to the current literature which are really indispensable in a subject as rapidly growing as electroencephalography. The collaboration of a physicist in this book is probably the reason why the sections on recording techniques are rather better. Neither book, however, contains sufficient data in this connection to enable a physician to buy a machine and start recording and reporting. The main chapters in each book are devoted to epilepsy, general effects of brain damage, and psychiatric conditions. They are both well illustrated, but one figure in Dr. Hughes' book (figure 64) appears to have been displaced and does not have an adequate reference in the text.

The place of clinical electroencephalography in this country is still very unsatisfactory. Little has been done to implement the recommendations of a sub-committee of the Royal College of Physicians, and the training and status of physicians interested in EEG is still inadequate. Both these books fill the need for a good introductory text to the clinical uses of electroencephalography. They are, of course, no substitute for the personal experience that is necessary in order to become competent, even at routine reporting. Furthermore, if this method of investigation is going to continue to make contributions, both clinical and experimental, then electroencephalographers will have to know very much more about basic neurophysiology than is provided by these books. To do so properly would, of course, double their size, but it is a pity that neither book gives adequate references to the basic literature.

D. A. POND.