Book reviews

PROGRESS IN BRAIN RESEARCH, vol. 2. Nerve, Brain and Memory Models. Edited by Norber Wiener and J. P. Schädé. (Pp. viii + 280; illustrated. 80s.) Amsterdam, London, and New York: Elsevier. 1963.

This is the Proceedings of a symposium on the 'Cybernetics of the nervous system' held as part of the Second International Meeting of Medical Cybernetics in April 1962. The contributions are primarily addressed to the explication of models representing a rather wider range of biological processes than is immediately suggested by the title. Many of the papers are strictly speaking concerned with purely psychological topics. The bridge between psychology and neurophysiology is provided by several authors in the form of the fashionable 'nerve nets'. Thus Cowan briefly describes his mathematical studies of the problem of error-free computation by a network subject to local random failures. Braitenberg points out the limitations of electrophysiological recording and shows how histological evidence may yield insight into the functioning of large networks. Ashby and his co-workers investigate possible pathological correlates of the oscillatory activity which characterizes the simpler hypothetical networks.

At a more behavioural level, the substitution of 'information-processing logarithm' for the more familiar 'conditioned reflex' is an integral part of Napalkov's work in Moscow: he describes experiments on artificially-induced hypertension which he wishes to explain in terms of models derived from American studies in artificial intelligence. That is, he wishes to view behaviour in terms of a programme functionally organized into levels defined by different degrees of detail in the information that is being processed. Such an approach must be backed up by implementation on a digital computer, which Napalkov so far seems not to have done. With the possible exception of papers by Frank and Müller on the associative networks '*Lernen-matrizen*', the symposium did not adequately reflect the current development in the use of computational techniques to model complex operations such as must be performed in the nervous system. Indeed several papers perpetuate the pseudo-philosophical approach which characterized the early writings in cybernetics; they contribute to the general inhomogeneity of content, standard, and length among the 20 papers published here.

M. B. CLOWES

PROGRESS IN BRAIN RESEARCH, VOL. 3. THE RHINENCEPHALON AND RELATED STRUCTURES Edited by W. Bargmann and J. P. Schädé. (Pp. 253; illustrated. 70s.) Barking: Elsevier Publishing Company Ltd. 1963.

The rhinencephalon and related structures, the amygdala and hippocampus, are thought to play an essential role in emotion, memory, sexual behaviour, etc., and have become a central subject for research on brain mechanisms. This volume publishes a series of authoritative

lectures (and discussion) given in Kiel in September 1962 and provides a valuable source of reference to a rapidly expanding subject.

W. RITCHIE RUSSELL

PRINCIPLES OF NEUROLOGICAL SURGERY By Loyal Davis and Richard A. Davis. (Pp viii + 608; illustrated.) London: W. B. Saunders, 1963.

The question as to whether neurosurgery should be called neurological surgery or surgical neurology still engenders argument in some quarters. The title of this work suggests that the emphasis is on surgery rather than neurology but as purely surgical matters are conspicuous by their absence, surgical neurology would be a better title.

Writers of textbooks should limit their scope to the interests of the prospective pool of readers; their success depends very largely on this. It is difficult, however, to envisage any large group which might find this a satisfying work. The authors (in this edition Dr. Loyal Davis is joined by his son) state that the work is intended for students and physicians. It is far too detailed for any other than the most energetic student whereas the physician will find many sections too superficial; the first chapter on neurological diagnosis might be instanced. He would certainly be most interested in the prospects of surgical treatment and this aspect of the subject is not dealt with at all well. A clear statement in each section concerning the indications for various operative procedures and arguments as to the value of many controversial operations would be helpful for those not actually practising surgery but such clarity is missing from most chapters. One might infer from the text that operations for intracranial aneurysms were quite simple and that every patient with an aneurysm should have some sort of operation, but this is over-simplification. In another sphere not all would agree that every glioma should be operated on.

Much of the book is taken up with clinical descriptions of disease; most of these are good and some masterly. The addition of photographs of pioneers in neurology and neurosurgery with a brief quotation from their writings is an excellent idea and adds interest to the subject. A great deal of space is devoted to descriptions of histology which are generally excellent but surely too elaborate for the proposed readership of the book.

There is some evidence of inadequate revision; angiomas, for instance, are dealt with rather badly under intracranial tumours and then again under intracranial vascular disease in a far better manner. There is throughout the work an air of 'out-of-dateness'. The concept of 'venous' and 'arterial' angiomas is no longer accepted; it must be a long time since Bailey's scheme for the histogenesis of intracranial tumours appeared in print as its importance is no longer accepted and descriptions of glioblastomas and astrocytomas as separate tumours seem hardly justified at the present time. The visual field