
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-matrixsen', 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


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


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
changes in parasellar lesions are hardly touched on though they form the keystone of diagnosis in this area; much of the recent work on cervical spondylosis has been omitted, including anterior operations of the Clayord type.

The newer concepts of brain damage in injuries hardly get a hearing though many date back to the 1939-45 war; the newer ideas on nerve conduction in testing injuries are not described; and the arguments for and against hypothermia are not clearly stated nor are the methods available described.

The subject matter is not well arranged; who would expect to find a description of the anatomy of the skull, meninges, and vessels in the middle of the book under cranio-cerebral injuries? Looking for specific facts the index is often unhelpful and could be elaborated.

This book will certainly find a place on the shelves of most young neurosurgeons for it contains much that is good and is the only textbook of neurosurgery of manageable size available. Its aims are, however, too diffuse and a change of emphasis to the surgical or neurological aspects of these diseases might be of value in subsequent editions.

BRODIE HUGHES


This comprehensive monograph is based on 70 cases of primary tumours of the vertebral column which have been investigated by the neurosurgical service at Marseilles. The clinical, radiological, and pathological features are very well presented, and a concluding chapter concerns principles of treatment. There is a bibliography of over 500 references. This book may be recommended to neurosurgeons, radiologists, and neurologists as a detailed review of the subject and as a mine of valuable personal observation.

W. RITCHIE RUSSELL


This monograph presents a study of 170 neurosurgical patients with respiratory disorders of central origin, mostly of acute onset. The abnormalities of respiratory movement are classified and shown to be determined by the localization rather than pathogenesis of the lesion. Respiratory efficiency, as measured by the levels of the blood gases, and the sensitivity of the medullary respiratory centre, as judged by the response to an increasing partial pressure of carbon dioxide, are related to the varieties of disordered respiration. Two clinical situations are distinguished; heightened sensitivity of the respiratory centre, which occurs with restlessness, rigidity and extensor spasms, and diminished sensitivity, in a setting of hypotonia and relative indifference to pain. Finally, the relevance of these findings to the use of sedatives and of stimulants in therapy is discussed.

The work is clearly and concisely presented, and complemented by an adequate index and an unusually extensive bibliography.

M. KINCSBOURNE


The authors of this short book give a useful summary of the evidence relating handedness to cerebral dominance. They also report a careful comparative study of the effects of unilateral hemisphere lesions in right- and left-handed patients respectively, having regard to the incidence of agnosia, apraxia, and disorders of the body scheme as well as disorders of language. Their analysis indicates that disorders in all these spheres tend to be more common, though as a rule milder and less long-lasting, in sinistrals than in dextrals, irrespective of the laterality of the lesion. Differences also appear to exist in the pattern of disability associated with unilateral lesions; receptive speech defects, for example, seldom present in severe degree in dysphasic sinistrals whereas disorders of the body scheme are if anything more complicated than in dextrals.

Although such differences have been reported before, this is perhaps the first study of its kind in which statistical tests of significance have been applied where appropriate.

In the light of their findings, the authors postulate that the mode of organization of higher cerebral function in sinistrals differs appreciably from that in dextrals, and may perhaps be said to display less well-marked unilateral specialization. Although not all neurologists will agree with this view, the evidence on which it is based deserves close study by everyone interested in the problem of cerebral dominance.

W. RITCHIE RUSSELL


This book describes the mechanism by which various nerves are injured by muscular action and fibrous bands. Many neurologists will be more familiar with the terms 'occupational' or 'compression' neuropathy. It is a good idea to bring these cases together as has been done here and the anatomical relationships are well presented. However, it is surprising to find that emphasis is so much on the pain caused by these neuropathies and so little on the distribution of the muscular paralysis on which accurate diagnosis depends so much; indeed these cases are often quite painless. Thus there seems to be no clear account of the syndromes resulting from a neuropathy causing a block of the posterior interosseous or of the anterior interosseous nerves in the forearm. However, this is a useful publication which draws attention to a rather neglected subject.

W. RITCHIE RUSSELL


This is a useful little book which not only brings together the scattered literature of this subject but which also contains the author’s personal observations on 200 diabetic patients. The clinical findings in those with neuropathy are well described, and there is also a detailed account of electro-physiological studies carried out in