

long distances. At the time Cajal was embarking on his microanatomical studies the origins of motor fibres were known, but the central connections of centripetal fibres, and between neurons, were not. This small volume, first published in Spanish then French in 1894, and now pleasingly translated into modern English thanks to MIT, shows how he resolved many problems of this nature. As a short account of his work it is essentially an embryonic form of Cajal's later, monumental survey of vertebrate neurohistology published in French from 1909–11. The volume under review is beautifully produced, as befits a valuable, classical text. There are chapters on the spinal cord and brain, the olfactory mucosa, retina and internal ear, on the Golgi method and on the "spider cells". Convincing camera lucida drawings and diagrams are employed throughout, obtained from numerous vertebrate species, occasionally from man. Cajal's most important contribution was to show that nerve cells do make connections through dendritic plexuses, but without the cytoplasmic continuity believed in at that time. His work was widely known and admired; he shared the Nobel prize in Medicine in 1906, ironically enough, with his rival Golgi, for their views were nearly always diametrically opposed.

This is a book for the bedside, to be dipped into and kept, and never lent.

DGF HARRIMAN

Cerebrovascular Disorders—Fourth Edition. By JAMES F TOOLE. (Pp 553; Price: \$114.00.) 1990. New York, Raven Press. ISBN 0-88167-673-X.

The success of the previous editions justifies this new comprehensive review. We may envy the author's facility to write during a sponsored sabbatical year spent in the idyllic precincts of Green College, Oxford—no stranger to distinguished neurological literati.

James Toole has adopted the traditional approach with lavishly illustrated chapters on anatomy and applied physiology of the brain's circulation. He reviews the syndromes of the carotid and vertebro-basilar arteries, TIAs, their medical and surgical management; then, carotid stenosis, cerebral emboli, atherosclerosis and brain infarction. Succeeding chapters cover the rehabilitation, dementia, hypertensive syndromes, cerebral and subarachnoid haemorrhage and inflammatory and unusual vascular disorders, aneurysms and AVMs, anatomy and diseases of the venous system, and spinal vascular diseases.

The book spans 535 pages. Apt quotations head each chapter, deriving from authorities as protean as Osler, Conan Doyle and Mao Tsetung. Each section ends with selected references, set out under subject headings.

In such a comprehensive coverage it is inevitable that certain opinions are controversial. But, this is a healthy sign of a distinguished authority who has collected much of contemporary laboratory data and clinical trials and has not evaded the issues of proclaiming his opinions and advice: The risks of TIAs are said to be the risk of the underlying causes. The management of transient global amnesia is the management

of TIAs, and a trial of anticonvulsants is justified if EEG abnormalities are found and other measures fail. In cerebral embolism, if clinical examination indicates that the embolus is lodged in the extracranial circulation, ultrasonography is followed by angiography immediately preparatory to emergency surgery. In cerebral embolism, anticoagulants are to be given as rapidly as possible. In subarachnoid haemorrhage and the succeeding chapter on aneurysms, the incidence and clinical features of individual aneurysms are plainly portrayed, but the crucial problems of surgical morbidity and mortality of surgical management are given only in outline.

Many will agree with these views and with a variety of other debatable topics. It is refreshing to see so much data condensed and lucidly presented with clear diagrams and illustrations. Many sections, in a rapidly changing field of medicine, will soon be out of date; but the basic material about strokes will survive as a valued source of reference and of didactic opinion. I hope its purchasers will include general physicians as well as medical and surgical neuroscientists.

JMS PEARCE

Intervertebral Disk Diseases. 2nd Edition. Causes, Diagnosis, Treatment and Prophylaxis. By J KRAMER. (Pp 312; Price: DM148.00.) 1990. Stuttgart, Georg Thieme Verlag. ISBN 3-13-582402-0.

This book is a translation with revisions from the second revised German edition published in 1986. Perhaps as a consequence, the fairly extensive bibliography largely ceases around 1987 with occasional exceptions. The book is divided conventionally into historical aspects followed by anatomy and physiology then pathological anatomy and physiology, moving into discussion specifically of cervical, thoracic and lumbar syndromes. The discussion of the clinical aspects is relatively brief and not entirely uncontroversial. For example, the muscles of the thenar eminence are considered to be primarily involved in a C7 root syndrome. There is a failure to mention involvement of the adductors of the thigh in an L3 root disturbance, and misleadingly under the umbrella of lumbar syndromes attributable to degenerative changes of lumbar intervertebral discs, are included the symptoms of transverse myelitis (cauda equina syndrome). There is no entry in the index for arachnoiditis, that condition being discussed under the title of Post-discectomy syndrome. Curiously, on page 139 it is suggested that a disc herniation at L4/5 with L5 nerve root compression produces marked loss of active knee extension.

The discussion of the investigation of these various nerve root syndromes is also flawed. The discussion of EMG in the context of the differentiation of plexus from root syndromes is hardly touched on. Indeed the discussion of the EMG assessment in lumbar syndromes receives approximately a dozen lines. No mention is made of the value of paraspinial electromyography in the assessment of lumbar syndromes, nor detailed discussion of the role of peripheral conduction studies and evaluation of somatosensory responses. More serious still is the relative failure to discuss the role of magnetic resonance imaging in the

evaluation of cervical and, more particularly, lumbar disc syndrome. The brief section which appears on this technique around the middle of the book fails to do it justice, and indeed is restricted to references from before 1988.

There must be some further concern when assessing the sections on therapy. A vast range of therapeutic techniques is covered. At times statements are made without appropriate referencing. For example, "electromyographic studies have shown that the same relaxing effect on the lumbar muscles which is achieved with manual massage and (sic) can also be accomplished with electrical instrumentation". Many of these therapeutic regimes have been recommended without adequate objective data to analyse their true role. Rather more than half the references are in the German language.

In the light of these comments, therefore, I am unable to recommend this text book.

GD PERKIN

Central Regulation of Autonomic Functions. Edited by A D Loewy and K M Spyer. (Pp 390; Price: £65.00.) Oxford, Oxford University Press. 1990. ISBN 019-5051068.

This excellent review, edited by two distinguished neuroscientists, has drawn together the most modern concepts of central autonomic regulation and will be invaluable to other neuroscientists. In the past two decades there has been immensely productive research in this field which is summarised for the first time in this volume. The studies involved have used the newest techniques of neurobiology including a very recent method of tract tracing by retrograde transneuronal viral cell body labelling.

The book starts with the recognition that the preganglionic sympathetic neurones are not a homologous population in their localisation, somal shape and transmitters. This leads to the recognition of specialised coordinating functions even at the spinal cord level. At the brainstem level the nucleus tractus solitarius has major importance and the central network probably functions like a microprocessor to integrate a wide range of autonomic afferent information and then causes outward changes in the autonomic nervous system, the neuroendocrine system and possibly behavioural activities. There is a swing back to the conceptual model of Herring, who wrote in 1863 of "respiratory movements of the vascular system". The current model includes a cardiorespiratory oscillator that is common to both systems but that depends on two antagonistic reticular inputs.

For the clinician one aspect of particular interest is the autonomic responses that accompany epileptic motor seizures. As Hughlings Jackson postulated in 1869 there is now clear evidence of cortical representation in the insula, with a prelimbic autonomic premotor area and a infralimbic autonomic motor area. However, it is not easy to distinguish direct autonomic responses from reflex changes that accompany somatomotor activity, pain and generalised epileptic discharges.

Another area of interest to the clinician is the discussion of the "playing dead" reaction in the rabbit which may have analogies with