

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

some types of fainting response in man. In the rabbit there is both the classic defence response and the "playing dead" reaction indicating that there are always several different pre-programmed patterns of behaviour and these can be switched in and out at will, depending on the environmental clues provided.

This complex account is much enlivened by good illustrations, careful editorial control and clear introductions and summaries to each section. The editors should be congratulated on providing a most valuable review which will be much welcomed by all those seeking to keep up with the accelerating pace of knowledge of central autonomic regulation.

ROGER BANNISTER

**Neurobiology of Incontinence.** Ciba Foundation Symposium 151 Series. (Pp 336; Price: £35.95.) 1990. Chichester, John Wiley & Sons Ltd. ISBN 0-471-92687-6.

CIBA have brought together many of the world authorities on urinary and faecal incontinence to discuss the problems of pathogenesis. Contributors are gathered from the disciplines of physiology, pharmacology, neurology, urology and proctology. The book starts with a review of innervation and pharmacology and proceeds to a consideration of functional assessment in the human patient. There is then a discussion of operative therapy with rather more of a bias towards anal incontinence than in most books of this type.

The eminence of the contributors ensures that the information in the reviews is comprehensive, up-to-date and critically presented. CIBA are to be congratulated for bringing together so many experts. While the adequacy of the review articles will be the attraction of this volume for those who are relatively unfamiliar with this interesting subject, it is the discussion section which may fascinate the more initiated reader. The overwhelming impression is of how relatively small the interdisciplinary understanding remains and of the very considerable value of looking at preconceived ideas from the point of view of other disciplines. The book will be provocative reading for all those who are already working in the field of incontinence and an essential introduction to all those who wish an overview of the subject whether from the aspect of basic science or clinical medicine.

M TORRENS

**Review of Biological Research in Aging.** Vol. 4. Edited by M ROTHSTEIN. (Pp 387; Price: \$175.00.) New York: Wiley-Liss, 1990. ISBN 0-471-56697-7

As the title indicates, this volume is part of a series directed at presenting reviews of recent work for biological scientists rather than clinicians. It covers a number of different aspects of aging ranging from evolution and genetics, through immunology and cell biology, to biochemistry. The coverage of species is similarly wide involving work on

protozoa, fungi, mice and man. This is not to mention the inevitable drosophila.

As far as readers of this journal are concerned, the main interest will lie in a collection of contributions on the neurology of aging with work relating to Alzheimer's disease being particularly well represented. There are reviews of such things as recent findings on the genetics of Alzheimer's disease, work on amyloid and the role of the striatum in aging. In addition, a useful discussion of some of the methodological problems that can be encountered in biological research into aging is worth a special mention.

In general, the standard of the contributions appears high, at least as far as can be ascertained by a reviewer who is less than expert in some of the topics covered. On the other hand, the more clinically relevant contributions, like that on the genetics of Alzheimer's disease, tend to deal with material that is also recently reviewed elsewhere. This reinforces the view that the present volume is essentially of interest to those whose concerns extend into fundamental biological issues. It is not an obvious purchase for the typical hospital library.

E MILLER

**The Human Nervous System.** Edited by G PAXINOS. (Pp 1195; Price: \$195.00.) San Diego, USA: Academic Press Inc, 1990. ISBN 0-12-547625-6

Interest in the anatomy, chemistry and pathology of the human brain has never been greater. Therefore, a book which is intended to provide a comprehensive account of human neuroanatomy is timely. The editor has commissioned acknowledged authorities to contribute the chapters that make up the book.

The book opens with an evolutionary perspective followed by five chapters on the spinal cord and peripheral nervous system. The three chapters on the spinal cord present an account of its organisation and connections and include high quality photomicrographs and drawings. The latter, particularly those which show three-dimensional representations, are very informative and provide good teaching material. The next group of chapters, a rather heterogeneous group, is devoted to the brainstem and cerebellum. There are chapters here which should not have been included because they are not about the human nervous system. For example in Chapter 10, G Holstege acknowledges that almost nothing is known about the descending limbic projections to the human brainstem and spinal cord and yet an entire chapter, based on work in the cat, is about these projections. There is an excellent review of the anatomy of the cerebellum by J Voogt and colleagues (Chapter 14) complete with superb illustrations. The following section includes nine chapters on the fore-brain. This section, too, contains a number of inconsistencies. Since there is a chapter devoted to the thalamus, why have a separate chapter on the limbic thalamus? Similarly, there is a 50 page chapter on the cerebral cortex, and yet an additional eight page chapter is devoted solely to the motor cortex. The sections here on the hypothalamus, basal ganglia, amygdala and hippocampus are of

exceptionally high quality, although the review of the amygdala is overdetailed (127 pages). A more homogeneous discussion describes the various sensory systems. This is followed by descriptions of the main neurotransmitter systems in the brain. It is rather unfortunate that this section is not accompanied by accounts of transmitter receptor localisation. Numerous studies have recently examined the distribution of receptor binding sites in the normal and diseased human brain.

Overall, this book fulfils its objective to be a useful guide to researchers and students. However, like so many multi-authored books, it is made up of chapters of uneven quality and depth of coverage. I do not think that too many individuals will rush to buy it at \$195. However, it is a good reference book and libraries should make it available to their readers.

JG PARNAVELAS

**Steroids and Neuronal Activity.** Ciba Foundation Symposium 153. Edited by D CHADWICK AND K WIDDOWS. (Pp 284; Price: £35.95.) Chichester: John Wiley & Sons, 1990. ISBN 0-471-92689-2

Each year the Ciba Foundation organises several multidisciplinary symposia on topics that seem ready for discussion by a small group of research workers. Steroids and Neuronal Activity is the published proceedings of such a meeting and contains the transcripts of 14 scientific papers and the general discussion which followed each presentation.

The general theme of the symposium was the examination of the mechanism of action of various steroidal substances on nervous tissue. These agents may act via known neurotransmitter systems, for example GABA, via induction of physical change in the lipid bilayer of the membrane or by indirect effects via the genome. Much of the work presented relates to the actions of progestins and oestradiol at cellular level and is undiluted "neuroscience-speak". Despite the technical complexity of the papers and discussion (predictably the most baffling being the presentations from Greece) the overall impression was one of fascination with the diversity of action of the steroid molecules on the central nervous system where parallel processing of hormonal substances in different nervous pathways seems a probable explanation for different modes of action.

Steroids and Neuronal Activity is well produced and clearly illustrated but is not a book for the clinical neurologists I know, despite its interesting insights. It will almost certainly adorn the workbench of most basic neuroscientists although at £35.95 it is relatively expensive.

DAVID JEFFERSON

**Otoneuro-surgery.** By W PELLETT, M CANNONI AND A PECH. (Pp 220; Price: DM 298.) Heidelberg: Springer-Verlag, 1990. ISBN 3-540-50979-8

This book represents the collective experience in the surgery of lesions around the