

increasing distance from the mid line.<sup>2</sup> The electrode tip in this case is at coordinates (F 7.7, H 0.0, L 6.8 mm). The bare component of the unipolar electrode extends 3 mm rostral to the tip at a 45 degree angle. In the sagittal plane the variability is approximately 2 mm. In this case therefore the possible structures which may be involved are the centromedian nucleus and parafascicular nucleus of the thalamus, the prerubral field of the mid brain, the medial part of the VPM nucleus of the thalamus, the habenulo-interpeduncular tract, the field H of Forel and the rostral components of the brainstem reticular formation.

**Electropathological discharges and localisation:** The EEG discharges observed in this case and used for final electrode placement were characteristic of discharges observed in other patients being similarly treated for chronic pain syndromes. The discharges have included an area in the rostral mesencephalon in contiguity with the posteromedial thalamus in which the centromedian nucleus was most frequently implicated. Since the discharges are generated by cellular elements and not by fibre tracts, and since attenuation of the discharges is accompanied by improvement without sensory and motor impairments, it was theorised that the observed effects were due to implication of neither the fibre tracts nor thalamic sensory-motor nuclei.

**Clinical reports without histological control:** It is unfortunate that precise anatomical localisation of an electrode cannot be given in the present case, nor in any other clinical reports which by necessity are dependant upon a stereotactic atlas of the human brain.<sup>1</sup> The most that one can expect in a brief case report, is to diagrammatically illustrate the anatomic site of localisation and to identify the site by the structure or anatomic system which most likely accounts for the results. In our report, it is expected that the readers will refer to the diagrammatic insert and realise, as did Mr Goadsby, that in all probability the centromedian nucleus is not involved to the exclusion of other structures.

The same reporting methodology was apparently used, in the rat studies quoted by Mr Goadsby, on cerebrovascular changes elicited by electrical stimulation of the centromedian-parafascicular complex in the rat. A non critical reader may think that the (C-M) complex is exclusively responsible for the findings. Although the electrodes are in the (C-M) Complex, the tractus retroflexus of Meynert may also be implicated for the following reason: histological diagrams of the electrode localisations reveal several points next to the tractus retroflexus of Meynert, which runs through the (C-P) complex. That tract, in part, conducts impulses from the anterior diencephalon and septal area, structures which are associated with BP elevations in response to high frequency discharges. Furthermore, after establishing threshold stimulation sites for BP elevations of  $\leq 10$  mm Hg and then stimulating at the same sites with parameters  $3 \times$  threshold, makes one wonder whether those fibre tracts were also implicated at those relatively high levels of stimulation. In addition, 1.5 h after anaesthesia may be insufficient clearance time to obviate chloralose hyperexcitability effects.

**Blood flow:** The increased cerebral blood flow from stimulation of the centromedian-parafascicular complex observed, by Mraovitch and Seylaz (1987) and Mraovitch *et al* (1986) in the rat, is of interest in view of

our demonstrating increased thalamic blood flow without obvious cortical involvement. One is tempted to speculate that the underlying mechanism is the same in both instances despite the deficiencies in specific anatomical localisation. The evaluation of local blood volume or local glucose utilisation depends on the radiolabelled agent used in SPECT. Iodoamphetamine (IMP) used in this case primarily evaluated rCBF, but probably also indirectly reflected local cell functions or metabolic state.<sup>3</sup>

**Blood pressure:** Acute changes in BP, as reported in the rat, were not noted in this patient nor any other during stimulation in the general area of the centromedian nucleus, even at threshold stimulation for sensory-motor responses. Spontaneously and artificially induced after-discharges also were not accompanied by BP changes.

- 1 Schaltenbrand G, Bailey P. *Introduction to stereotactic atlas of the human brain*. Thieme: Stuttgart, 1959.
- 2 Andy OJ, Jurko MF, Sias FR. Subthalamotomy in treatment of Parkinsonian tremor. *J Neurosurg* 1963;20:860-70.
- 3 Lee RL, Hill TC, Hollman BL, Clouse ME. An isopropyl (1-123)p-Iodoamphetamine (IMP) Brain Scans with SPECT: Disordance with Transmission Computed Tomography. *Radiology* 1982;145:795-9.

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## BOOK REVIEWS

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**The Right Cerebral Hemisphere and Psychiatric Disorders.** By JOHN CUTTING. (Pp 479; £45.00.) Oxford University Press. 1990. ISBN 0-19-261764-8

The fascination with the functional differences of the two cerebral hemispheres lives on. We have come a long way from the quasi-phenomenological theories that attempted to localise discrete functions to specific areas in the right or left hemisphere. More appealing views of the left hemisphere as an analyser and the right as a Gestalt processor have also been superseded by models based on the study of split brain patients and the use of dichotic listening and tachistoscopic techniques to direct information to either hemisphere. One such model put forward by Kosslyn considers that the left hemisphere analyses information along categorical lines, like a library of words or objects, whilst the right hemisphere is more like a guide-book that allows us to get information from the library.

Cutting has found inspiration in Kosslyn's views and his perambulations across the two hemispheres are done with his guide-book firmly in hand. The result of his effort is a unique book that provides a detailed and scholarly review of hemisphere function that will be impossible to find anywhere else. The book is divided into three sections. The first deals with the evidence of the differential functions of the two hemispheres and includes an excellent historical review. The

second deals with focal neuropsychiatric symptoms in the light of differential hemisphere function and includes a useful chapter on tests of hemisphere function, and the third explores the role of hemisphere differences in the causation of psychiatric disorders.

In my view the main strength of the book lies in its second section which skilfully explores the common ground between many psychiatric and neurological phenomena which, at times, have been artificially separated. Various disorders of awareness, language and thought and other symptoms such as delusions are dealt with here. New insights into phenomenology are abundant and I can easily envisage coming back to it in search for an explanation, when puzzled by clinical cases. The last section is perhaps best seen as food for thought and it is less likely to stand the test of time.

Cutting firmly believes that a hemisphere imbalance, with impaired functioning of the right hemisphere, is at the root of schizophrenia. The evidence for this, as Cutting himself points out, is far from conclusive and the recent imaging and neuropathological studies have failed to provide the desired proof. In fact, finding a coherent explanation to encompass the evidence implicating abnormalities in various cerebral sites in schizophrenia is one of the greatest challenges facing psychiatry; and hemisphere imbalance is unlikely to be a satisfactory explanation. The evidence is even less convincing for affective illness and autism. These problems do not detract from the interest of the book, but add to the hope that Cutting will again be tempted to write on the subject when, in a few years time, the biology of psychiatric illness will be better understood. All those interested in the complex relations between brain and mind should read this book.

MARIA A RON

**Clinical Neurophysiology of the Vestibular System.** 2nd Edition. Contemporary Neurology Series. By R W BALCH AND V HONRUBIA. (Pp 301; Price £38.79). Philadelphia, F. A. Davis Co., 1990. ISBN 0-8036-0584-6.

The first major investigations of clinical disorders of the vestibular system were carried out by Robert Barany in 1907. Since this time, and especially in the last 15 years a veritable deluge of tests has been applied to function and reflexes arising in the vestibular apparatus. Neuro-otology has evolved as a new specialty, but sadly the refinements of clinical diagnosis and treatment of the dizzy patient have lagged behind. Indeed only a handful of diagnoses are used by most audiologists and neurologists. The commonest are: acute vestibular neuronitis, benign positional vertigo, the clinically ill-defined and much overdiagnosed Menière's syndrome, and a variety of clinical assumptions in later life yielding labels such as cervical spondylosis and vertebrobasilar insufficiency often in tendentious fashion.

There is little doubt that the dizzy patient will at least receive a more accurate diagnosis if suitably investigated in a clinically directed neuro-otology laboratory, even if he or she emerges with specific drug or surgical therapies which are often disappointing.

The second edition of this book from UCLA appears some eleven years after the first. It is conventionally divided into three

sections on anatomy and physiology; the evaluation of the dizzy patient—an analysis of history, examination and laboratory tests; and the diagnosis and treatment of common neuro-otologic disorders. The last is disappointingly brief and in many ways uncritical, and old fashioned. By contrast, the first two sections are detailed, precise and provide a most helpful current account of clinically relevant anatomy and investigation. MRI, evoked potential techniques, electro-nystagmography and the newer rotational investigations of semicircular canal function are considered and well illustrated.

I think this a useful book, which attempts and to a large measure succeeds in illuminating a difficult, tenebrous area of neurology. It is not cumbersome in size or content and I will certainly commend it to colleagues and junior staff in training.

JMS PEARCE

**Neuroendocrinological Aspects of Neurosurgery. Proceedings of the Third Advanced Seminar in Neurosurgical Research, Venice April 30–May 1 1987.** Edited by J D PICKARD, F COHADON, J LOBO ANTUNES. (Pp 128; Price: DM158.) Wien, Springer-Verlag, 1990. ISBN 3-211-82160-0.

Under the guidance of its recent and current chairmen, the Research committee of the European Association of Neurological Surgeons, with the support of Fidria, has held a series of very successful meetings, directed at younger staff neurosurgeons and senior trainees with an active involvement in research, designed to link selected areas of clinical neurosurgery with basic neuroscience. This book is the proceedings of the third (1987) meeting.

The first half of the book covers anatomy, physiology, neurohumoral and clinical aspects of the hypothalamo-pituitary axis. Everitt and Hökfelt provide an authoritative description of the anatomy of the hypothalamus and its connections. They illustrate the wealth of information now available on projections, receptors, and neurotransmitter co-existence. An attempt is made to integrate some of this material in the chapter by Vincent and Simonnet which follows. They emphasise the analogies between classical neurotransmission and secretion, and the coupling of behavioural and neuroendocrine homeostatic mechanisms, for example drinking and vasopressin secretion in response to osmotic stimulation. Some newer concepts are also developed, such as dendritic liberation of neurotransmitters, and autoreceptors. The chapters by Page *et al* and Teasdale *et al* are excellent reviews of the medical and surgical aspects of hypothalamic and pituitary diseases and their treatment.

However, it is the group of chapters on the relationships of the CNS with systemic metabolism and fluid balance in subarachnoid haemorrhage and head injury which give this book much broader relevance, for physicians as well as for surgeons. There are excellent and very lucid reviews of CNS control of fluid balance, and its disturbances in neurosurgical patients, by Lightman and Walker respectively. The chapters by Neil-Dwyer, Wijidicks, Nelson and Doczi and their respective collaborators are essential reading for vascular neurosurgeons and neurologists.

The use of double column A4 format provides for a large volume of information within 128 pages, and results in a conveniently thin book which will slip easily into a briefcase. It is an excellent expression of the collective strengths of European clinical neuroscience, and the price makes it a good buy for a departmental library. Potential specialty fellowship candidates—and examiners — may well find it useful.

ANTHONY STRONG

**Conceptual Issues in Psychological Medicine.** By MICHAEL SHEPHERD. (Pp 335; Price £40.00) London, Routledge, 1990. ISBN 0-415-03727-1.

The title of this book is misleading. Professor Shepherd has already published two volumes of his collected papers and this third volume contains a motley collection of papers, essays and commentaries that for one reason, or another were unsuitable for inclusion in either of the earlier collections. A hundred pages, no less, are occupied by case histories of morbid jealousy and half the other eighteen articles are brief essays of less than five thousand words. All the same they make compelling bedside reading, for Michael Shepherd is always thoughtful and perceptive with a fluent pen, a well developed sense of history and a keen eye for the shortcomings of contemporary Anglo American orthodoxies. He is also impressively erudite and, like Macaulay, Aldous Huxley and his mentor Aubrey Lewis, delights in trailing his learning before his readers. The paper on morbid jealousy is, despite its impedimenta, a classical clinical description and there are important messages for contemporary psychiatry in several of the historical and literary pieces.

RE KENDELL

**Immunologic Mechanisms in Neurologic and Psychiatric Disease.** (Research Publications: Association for Research in Nervous and Mental Disease, Vol. 68) Edited by BYRON H. WAKSMAN. (Pp 336; Price \$144.00) New York, Raven Press, 1990. ISBN 0-88167-593-8.

This volume admirably maintains the high standard of its numerous predecessors dating from 1920. In view of the large number of books on neuroimmunology which have appeared in recent years, it is always somewhat daunting to have to confront yet another volume on this subject. However, in this case the effort is certainly worthwhile since this book provides a large number of high quality reviews all of which display a uniformly consistent standard of discussion and presentation. The two broad messages which came over to me after reading this were firstly, that basic mechanisms in immunology are being recognised as being increasingly complex in nature which in turn is reflected by the increasing sophistication of the concepts and techniques applied to neuroimmunological problems; and secondly, that the evidence for a close association between the immune systems and the CNS is increasing at a rapid rate.

The book is divided into several sections which follow each other in a logical and

coherent sequence. The opening chapters cover basic neuroimmunological mechanisms with excellent and thoughtful overviews on the genetic, molecular and general aspects of neuroimmunology. In the second section there are concise reviews on the immunopathological mechanisms of Multiple Sclerosis, noninflammatory immune mechanisms of CNS diseases and nervous system-immune system interactions. The third section covers monophasic autoimmune inflammatory diseases of the nervous system, chronic demyelinating diseases, tropical spastic paraparesis and the topical subject of HTLV-1 myelopathy, intraocular inflammatory disease and immune aspects of inflammatory myopathies.

I found the subsequent section on immunology and psychiatric disorders particularly interesting, covering the relationship between autoimmunity and depression, brain and behaviour and the immune system in general as well as neurological aspects of SLE. Non-inflammatory autoimmune diseases are then considered including very useful reviews of paraneoplastic syndromes, monoclonal gamopathies and neurological syndromes, disorders of the myoneural junction and motor neurone disease. The final chapters cover the subject of virus infection in T-cell deficient patients including SSPE, PML, a particularly thoughtful discussion of the pathogenesis of the AIDS dementia complex, behavioural correlates of HIV infection and finally the immunology of transmissible spongiform encephalopathy.

I found this book informative, stimulating, concise and full of original ideas. The production is excellent, the illustrations good and the referencing comprehensive. It is certainly not easy reading for the clinician without a working knowledge of neuroimmunology and it is also very expensive. Nevertheless, I shall find this volume very useful indeed and would certainly recommend that all good neurological and general medical libraries acquire it. Researchers in the field of neuroimmunology as well as many other clinicians and scientists would also find it to be a valuable aid to their work.

P G E KENNEDY

**Cerebral Blood Flow and Metabolism Physiological Society Study Guides.** By A MURRAY HARPER AND SHEILA JENNETT. (Pp 110; Price: £22.50 hb; £7.95 pb). 1990, Manchester University Press. ISBN 0-7190-2892-2 hb, 2893-0 pb.

This concise, multi-author text is the latest in a series of Physiological Society Study Guides and is based on a teaching symposium on cerebral blood flow and metabolism, held in Glasgow in 1987, and updated to take into account recent developments. It is primarily aimed as an introductory text for those starting out in this increasingly complex field and is not intended as a research review for the seasoned investigator.

The five chapters: physiological control, innervation of the cerebral vasculature, cerebrovascular reactivity, measurement and anatomy of cerebral blood flow and the tomographic methods are clearly presented, with a useful review of important literature and supplemented by the frequent use of complementary figures. In this respect, the aims of the book have been achieved and I was