

### Matters arising

turbances, such as positive tests for rheumatoid factor, a very non-specific B-cell reaction, may also be found. However, antibodies to double stranded deoxyribonucleic acid (DNA) and extractable nuclear antigens (ENAs) are persistently negative. Histology of vessels reveals a complete absence of vasculitis with intimal thickening predominating.

Although a "sero-negative" group of patients with similar manifestations undoubtedly exists, we consider it mandatory that aCl antibody estimations be undertaken in all patients with obscure cerebral disease, perhaps accompanied by vascular occlusions, such as the authors describe in their patients. Therapy with anticoagulation and/or aspirin and other antiplatelet drugs is more beneficial than steroids or immunosuppression in these patients and may well prevent further deterioration.

RONALD A ASHERSON  
RICHARD GLEDHILL\*

*Lupus Arthritis Research Unit,  
The Rayne Institute,  
St Thomas' Hospital,  
London SE1 7EH,  
and the East Surrey Hospital,\*  
Redhill, Surrey RH1 5RH, UK.*

occlusive ocular vascular disease in systemic lupus erythematosus and the "primary" Antiphospholipid Syndrome. *Ann Rheum Dis* 1989;48:358-61.

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### Dr Bogouslavsky replies:

I agree with Dr Asherson that newly developed tests should be performed in patients with obscure cerebrovascular disease. But before attributing an aetiological value to abnormal results of these tests, their significance should have been screened in well-controlled studies of unselected patients with stroke, which is not yet the case for anticardiolipin antibodies. The same remark applies to therapy, as no controlled study of anti-agregants, anticoagulants, steroids or other immunosuppressive agents has been reported.

### References

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## Book reviews

**Basic Neurochemistry: Molecular, Cellular, and Medical Aspects.** Edited by George J Siegel, Bernard W Agranoff, R Wayne Albers, Perry B Molinoff. (Pp 1000; \$65.00.) New York: Raven Press, 1988.

This fourth edition of an already successful publication can justifiably be regarded as a new book. More than half the chapters appear for the first time and all other contributions have been written and updated. Authors have written succinctly with only key (mainly American) references and the format has been greatly improved. Each chapter has a list of contents with italicised sentences summarising an area of text and headings which, with an index of 50 pages, facilitates information retrieval.

*Basic Neurochemistry* has a subtitle *Molecular, Cellular and Medical Aspects* and this gives a realistic indication of the scope of this substantial treatise. Contemporary neurochemistry is no longer restricted to descriptive biochemistry of the nervous system and indeed this aspect of the subject is not emphasised. The book is divided into six parts, the first of which is on neural membranes. This includes an introduction to cellular neuroanatomy, properties of membranes, myelin and a brief review of the molecular biology of vision and phototransduction mechanisms. The next and major topic is synaptic function and related neuropharmacology. Chapter 9 is particularly useful as there is a clear explanation of

quantitative aspects of drug-receptor interactions. A typical chapter of 28 pages is on acetylcholine with clear text and diagrams (for example the molecular species of cholinesterase, the active site, the transmembrane domain structure of the muscarinic receptor). An important concept discussed by various contributors is that of the second messenger systems (G-proteins, phosphoinositides, cyclic AMP), their regulation and neuronal function mediated through protein phosphorylation. Molecular neurobiology is dealt with in Part 3: gene expression, molecular probes and molecular genetics of inherited neurological degenerative disorders. The individual chapters in this part are short but provide an understandable basis for a difficult yet essential new area of progress. In the section on cellular neurochemistry there are authoritative reviews on metabolism and neurobiology (axonal transport, plasticity and regeneration). There are much improved chapters on development and ageing of the nervous system.

In Part 5 (biochemical aspects of neurological diseases) some chapters are descriptive (such as muscle biochemistry or diseases of oxidative metabolism) but others are more concerned with pathogenic mechanisms. Examples of the latter are an interesting general chapter on the biochemistry of neuropathy, one on ischaemia and hypoxia and another on epileptic seizures. There is a new account of positron emission tomography which interrelates with chapter 29 on circulation and energy metabolism of the brain. A chapter on clinical chemistry

could have been profitably included in this section. The final chapters are on behavioural neurochemistry and this includes schizophrenia, affective disorders and anxiety. The effects of endocrines on behaviour and a thoughtful chapter on mechanisms of learning and memory conclude this part.

The editors and the contributors are to be congratulated for producing such a splendid book although owing to its size (700g) it is likely to be primarily used for reference purposes. By present day standards it is reasonably priced and I can recommend it to both clinical and basic scientists as an essential and very readable textbook.

AN DAVISON

**Epilepsy and the Reticular Formation: The Role of the Reticular Core in Convulsive Seizures.** (*Neurology and Neurobiology Vol 2.*) Edited by GH Fromm, CL Faingold, RA Browning, WM Burnham. (Pp 232; \$49.50.) New York: Alan R Liss, 1987.

The mechanism and site of seizure initiation in primary generalised epilepsies remains conjectural. Penfield and Jasper in their classic volume *Epilepsy and the Functional Anatomy of the Human Brain* (1954) proposed a centrencephalic theory that attributed synchronous cortical discharges to activity originating in the reticular core of the brain stem and midbrain. More recently

many authors have argued that thalamic and callosal mechanisms can provide rapid cortical generalisation of discharges originating at a cortical level. The importance of the brain stem and midbrain in seizures is shown by the possibility of evoking generalised motor seizures (by chemical or electrical means) in rodents after supracollicular section or total cortical ablation. The importance of the corpus callosum in seizure generalisation is shown by the protection callosotomy provides against the generalisation of focal cortical seizures. Pathology shows that generalised seizures are rarely a consequence of brain stem lesions but may be associated with cortical lesions. Electroencephalographic studies with depth electrodes in generalised seizures have predominantly revealed paroxysmal activity originating in the cortex rather than deep structures.

This volume provides a slightly polemical account of the reticular core of the brain and its role in experimental seizures. There are in total 11 chapters (contributed by the editors and seven other authors). An historical introduction is followed by an anatomical summary and four chapters based principally on experimental studies in rodents that described seizures induced electrically or chemically at the level of the brain stem or spinal cord. Fromm and Terrence review their studies of the effects of antiepileptic drugs on the trigeminal complex. These provide interesting differentiations of anti-absence drugs from phenytoin and carbamazepine in terms of their actions on descending excitation and inhibition. Ronald Browning describes the effects of reticular cerebellar or nigral lesions on seizures in rats and cats. A chapter by Jinnai and Mukawa describes clinical observations in man and the use of Forel-H-tomy. This is based on 40 years of clinical experience, aided by the classical experiments of Jinnai and Hayashi on spread of seizure activity from cortex to motor output in dogs and monkeys. This contribution appears somewhat out of context but provides a corrective to the focus of the rest of the earlier chapters. It emphasises the classical methods for studying functional pathways and the therapeutic potential of such knowledge, but is not concerned with the reticular core.

Two final chapters attempt a synthesis. Burnham and Browning reformulate a reticular core hypothesis based substantially on rodent experiments. Fromm in his overall summary accepts that seizure initiation in man is most probably a cortical phenomenon but seeks to retain a role for the brain stem in seizure hemispheric generalisa-

tion (which is debatable) and in motor expression of generalised seizures (which is incontrovertible).

This volume provides a valuable summary of current research on the brain stem for those researching mechanisms of seizure spread and initiation. Progress in understanding the patho-anatomy of epilepsy is going to depend on study of cellular mechanisms and the interaction of all the systems of the brain, notable among which are the limbic system and the basal ganglia. This volume successfully illuminates the space around one lamppost.

BRIAN MELDRUM

**Neurocardiology.** Edited by H Kulbertus, G Franck. (Pp 364; \$59.50.) New York: Futura, 1988.

The inspiration for this book, based on a symposium held in Belgium in 1987, came from Natelson's review article (1985) describing a new interdisciplinary area which he named "neurocardiology". It is the study of the interaction between the cardiovascular and autonomic nervous systems in pathological states. Hence the subject matter is not that of a previous book of the same name which is mainly concerned with cardiac causes of cerebrovascular disease.

The first section deals with neuroanatomy. The ultrastructure of the AV and SA nodes of the mouse is described and the consequences of left and right sided autonomic stimulation of the canine heart are contrasted. Histopathological studies of intrinsic myocardial nerves are presented and the possible importance of endoneural mast cell degranulation triggering coronary spasm discussed.

The second section deals with neurophysiology. It is dominated by studies of sympathetic and parasympathetic stimulation in animal models looking at their effects on cardiac inotropy, chronotropy, automaticity and vulnerability to ischaemic arrhythmias. From these results it is clear that the two limbs of the autonomic nervous system do not have a simple agonist/antagonist relationship. There are also chapters discussing mechanisms of vagal stimulation of SA periodicity, reflexes controlling coronary tone, reflexes triggered by myocardial ischaemia (including the significance of region), the importance of the  $\alpha$ -adrenergic system in ischaemia and the value of chronic vagal stimulation in protection from ischaemia arrhythmias. Unfortunately, the

effects of cerebrovascular lesions on the heart, in terms of arrhythmia and myocardial necrosis, are dealt with only briefly.

The section on neurochemistry considers opioids and arrhythmia, tyrosine and blood pressure, and a clear but basic chapter outlining the importance of platelet aggregates, serotonin, thromboplastins and EDRF (endothelium-derived relaxing factor) on vascular smooth muscle. The section on behavioural stress includes an interesting chapter discussing the mechanism of delayed ischaemia induced by anger in dogs. The section on sleep includes chapters on haemodynamic changes and conventional function tests in sleep apnoea.

This multiauthor work contains minimal repetition and the editorial style is succinct. Given the breadth of neurocardiology the reader cannot hope to be familiar with more than a fraction of the experimental techniques referred to in the text, and it is unfortunate that there is often little reference to basic methodology. I wonder whether sleep apnoea, narcolepsy and the effect of emotion on baboon haemodynamics are beyond the scope of the title and that the space devoted to these might have been better spent expanding the core chapters which were excellent. Overall this book was a pleasure to read, providing a much needed introduction to an exciting new field.

GABRIELLE HOWE

**Magnetic Resonance Imaging: Atlas of Head, Neck and Spine.** By Catherine Mills, Jack Groot, Jonathan P Posin. (Pp 295; £67.75.). Beckenham: Lea & Febing, 1988.

This is an extensively illustrated atlas of head and spine anatomy as displayed by magnetic resonance imaging (MRI). The major part of the text comprises three chapters on head imaging: the longest one examines images in the axial plane and the shorter ones display anatomy in the coronal and sagittal planes. Cadaver sections taken at approximately the same level are present for different levels and planes. Unfortunately, many of the MRI slices are not exactly the same as the anatomical specimen which on many occasions is a significant disadvantage. Very many more anatomical landmarks are present on the cadaver sections than can actually be identified on the appropriate MRI slice. This is partly due to the rather long image produced by one of the imaging sequences (TR = 500 ms TE = ms) which

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