

that the anti free light chain antiserum we purchased from Behringwerke is raised in the goat by suitable mixtures of isolated Bence-Jones protein. The goat is a species that recognises only hidden determinants; consequently, as was clearly stated in the leaflets of Behringwerke, this antiserum precipitates only with free light chains and no bound chains.

We clearly stated the source of our antisera in our papers.

- (3) The references concerning our papers are not complete; missing are
- (a) Biochemical findings in MS. III. Immunoglobulins of restricted heterogeneity and light chain distribution in CSF of patients with MS. F Bollengier, P Delmotte, A Lowenthal, *J Neurol* 1976;212:151-8.
- (b) Oligoclonal immunoglobulins, light chain ratios and free light chains in CSF and serum from patients affected with various neurological diseases. F Bollengier, N Rabinivitch, A Lowenthal. *J Clin Chem Clin Biochem* 1978; 16:165-73.

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Thompson replies:

Dr Bollengier's first two points are essentially the same: what is the preferred method to detect light chains which are free (versus bound to heavy chains)—either some ostensibly "specific" antiserum or some electrophoretic separation of free from bound light chains which is then independently confirmed using other antisera against heavy chains (IgG and IgA). Experience has taught us to be wary of suppliers' claims about antibody specificity, mainly because their test systems are often rather different from those being used in one's own methods. Our previous work with the technique which relies on the suppliers' claims, have shown that "specific" antisera against free light chains, can in fact also react with bound light chains.¹ She has also noted a similar aspect of the same general problem, and hence we referred to her 1979 paper.² She says "Discrepancies in results according to different techniques used have been frequently noticed." She states this because she had noted "much higher" levels of free light chains in normals than had previous workers. With our electrophoretic separation and post immunofixation technique we find, however, no free light chains in normals.

Concerning her third point, the two "missing" references are clearly listed in her 1979 paper,² which we referenced as her latest paper on the topic.

References

- ¹ Walker RWH, Keir G, Thompson EJ. Assessment of cerebrospinal fluid immunoglobulin patterns after isoelectric focusing: Use of kappa and lambda light chain immunoperoxidase staining. *J Neurol Sci* 1983; 58:123-34.
- ² Bollengier F. Bound and free light chains in serum from patients affected with various neurological diseases. *J Clin Chem Clin Biochem* 1979;17:45-9.

Book reviews

Biochemistry and the Central Nervous System (5th Ed.) By Henry McIlwain and Herman S Bachelard. (Pp 660; £40.00.) Edinburgh: Churchill Livingstone, 1985.

It is 30 years since the first edition of this volume appeared. During the ensuing period, major advances have been made in our understanding of the biochemistry of the central nervous system. However, the new editions have, in turn, successfully kept the reader abreast of the most recent developments. Indeed, this book has become a classic reference volume of this era.

The 5th edition of *Biochemistry and the Central Nervous System* is no exception to the standard set by the previous editions. It is, without doubt, a reference work which all libraries and many individuals will value. The contents have been substantially reorganised and this edition sees the addition of four new chapters. Particular attention is paid to brain neurotransmitters, modulation of their actions and the consequences in terms of pharmacological effect, drug action and disease process. The volume as a whole is well produced and presented. The mammoth effort put into the new edition by the authors will be well appreciated for many years to come by clinicians and basic scientists involved in a variety of neuroscience disciplines. I congratulate Professors McIlwain and Bachelard on the achievement of making brain biochemistry understandable to such a wide audience.

P JENNER

Cerebral Vascular Disease 5 (*World Federation of Neurology 12th Salzburg Conference*) *Excerpta Medica International Congress Series* 687. Edited by JS Meyer, H Lechner, M Reivich & EO Ott. (Pp 361; \$74.00, £53.) Amsterdam: Elsevier Biomedical Press B.V. 1985.

This book catalogues the proceedings of the 12th Meeting of the International Salzburg Conference on Cerebral Vascular Disease held in September, 1984. The volume is, therefore, published in reasonably good time. It is well printed with 360 pages with good reproduction of diagrams, and illustrations but only moderately good reproduction of radiographs. The proceedings included a half-day symposium on cost-effectiveness of stroke investigation and, as usual, consisted of a collection of papers

under a number of general topic headings.

In the introduction, Professor John Marshall refers to the essential need for real discussion and inter-change of ideas between participants which limits the number of those attending the conference and yet there is no discussion of papers in the published proceedings. There are references at the end of each paper, there is a good author index and a list of contributors. The topic headings include: The Value of Technical Medicine for Diagnosis and Treatment of Cerebro-Vascular Disease, Neuro-Imaging Techniques, Haemorrhology, Stroke in the Young; and a rather odd collection of bed-fellows consisting of Cerebral Infarction, Cerebral Venous Thrombosis, and The Psychiatric Aspect of Cerebral Vascular Disease, all in one section. There is a final section of special contributions largely consisting of surgical and pharmacological innovation, attempting to improve perfusion in the ischaemic brain. Particular attention was given to calcium channel blockers, and phosphodiesterase inhibitors, which may prove to have a clinical application in due course. In the introductory session, it seems that xenon scanning techniques were the most cost-effective way of mapping local CBF values. The suggested application of CT/Xe imaging to brain death certification seems quite superfluous in view of the well established clinical criteria in use in the United Kingdom. PET is clearly likely to be the most revealing but applicable in only very few centres. The improvement of RCBF but no change of RCMRO₂ following ECIC bypass is in accordance with a recently published multi-centre trial which for practical purposes removes the indications for that operation. In view of the recent controversy over the causation of classical migraine it is interesting that there is some PET data to support the vascular rather than the metabolic theory. Blood rheology was reviewed by David Thomas. He suggested, amongst other things, that an HCT in the lower forties is perhaps ideal but sees the need for randomised trials to try and answer the difficult questions on management.

A comparison of intravenous and intra-arterial DSA is made by a Dutch group who find the intravenous technique has considerable potential and have not relegated it to second place, as seems to be the trend in the UK. They do, however, imply that in the current state of the art, the services of a resident engineer are required!

There are some general and specific papers of interest including one by Michael Harrison and colleagues, underlying the

difficulty of drawing conclusions from laboratory work on platelet aggregation. A paper from London, Ontario, discussed the value of cardiac monitoring and echocardiography in TIA and stroke patients. In common with many other people it was found that the more frequently such patients are investigated, the more frequently cardiac abnormalities are identified as being possibly responsible for the cerebral lesion. More work needs to be done in this area before one could confidently predict that it would be a value for-money-exercise, referring large numbers of patients to already heavily over-subscribed cardiac departments for 48-72 hour cardiac monitoring and 2D echo examination.

A paper from Ljungkvist and others from Malmo and Lund, pointed out the value of the relatively cheap continuous wave Doppler system for non-invasive investigation of the carotid bifurcation. They found measurement of spectral width to be the most reliable estimator of stenosis, greater than 35%. A comparison from Oslo of intravenous DSA and pulse Doppler found the Doppler to be superior and many other authors have subsequently published similar data, particularly in terms of cost effectiveness.

In general, this is a book for those involved in active research in the field. Its lack of a detailed index makes it a difficult book to use, although the contents give a useful indication of the subject matter.

JE REES

Brain and Mind. (*Psychology in Progress Series.*) Edited by David A Oakley. (Pp 251; £15.95 h/back; £6.95 p/back.) London: Methuen & Co Ltd, 1985.

This book addresses the "organic basis of mind" from an evolutionary perspective. The premise upon which the book is based, is that the evolution of the brain (in functional terms) is equivalent to the "emergence of an ability to form internal representations or models of the world, and to use these as a means of controlling behaviour". It is argued further that the contents of this internal world are nothing more nor less than the contents of mind. Unfortunately, this standpoint is taken without consideration of alternative conceptualisations of the nature of mind. While a full discussion of this perennial philosophical chestnut would be beyond the scope of the present book, an introductory overview would have been useful to place the authors standpoint in perspective.

Instead, the introductory chapter is fully within the biological camp, with a review by Jensen, of the phylogenetic aspects of brain development, intelligence and adaptive behaviour, from amphibians to man.

While the adoption of a definition of mind based on internal representations is conceptually narrow, it has the dual advantage of (1) sidestepping many of the insoluble esoteric issues surrounding purely philosophical debates on "mind", and therefore allowing a single argument to be developed and discussed, and (2) consideration of "mind" in animals, a topic which may be excluded at the outset when definitions of mind involve language or some other specifically human, intangible quality.

Two chapters, both by Oakley, consider cognition and imagery in animals, and animal awareness, consciousness and self image. Various strands of evidence are brought together from laboratory studies to ethological observation. A third chapter by O'Keefe is more specific, and presents a speculative model, based on his work with rats, that the septo-hippocampal complex may play a crucial role in consciousness, at least with regard to the physical world. The author admits that a full model needs to encompass both the physical and social world, a topic which is explored in a separate chapter by Oatley.

The final chapter, by Newcombe, reviews the impact of cerebral trauma on consciousness in man. Within the clinical field, a new problem of definition occurs with the term "consciousness" being used to mean anything from "wakefulness" to "self-awareness". Newcombe covers all areas, and draws upon many interesting clinical examples from split-brain patients to blind sight, putting these phenomena into new perspective.

By way of conclusion, I can do little better in recommending this book, than to quote from the publishers own review: "Students of psychology, zoology, anatomy, medicine and philosophy, as well as anyone who has wondered about their own mind and its relation to the brain, will find this a fascinating and stimulating source".

RICHARD BROWN

Case Studies in Neurology for the House Officer. By Stephen L Hauser, Lawrence P Levitt and Howard L Weiner. (Pp 255; £9.00.) London: Williams & Wilkins, 1985.

There seems to be a current vogue in medical teaching to include series of case studies as