Book reviews

construct, there is comparatively little agreement with regard to the structure of the working memory system, or the types, and levels of representation that are involved (see Monsell¹ for discussion).

Commencing with the account presented in Baddeley and Hitch,² the author and his co-workers have developed a particular model of Working Memory, and this monograph presents an overview of research and theory within that specific framework. Alan Baddeley's own developments of this model are persuasively described, but almost no consideration is given to alternative theories. Working Memory is a state of the art account of particular, albeit influential, set of constructs. It makes no pretensions to being a critical or tutorial survey of the current literature on short term storage systems, representations and processes.

In addition to evidence from studies of normal subjects, Baddeley discusses some of the relevant neuropsychological literature. Thus patients with a selective impairment of auditory verbal span are considered as evidence for failure of one of the components of system. Similarly certain types of frontal lobe syndrome are identified with dysfunction of another component. In the latter chapters of this book Alan Baddeley discusses the relevance of Working Memory for a range of topics including fluent reading, the development of memory span, aging and dementia.

Working Memory provides an introduction to the framework which has been developed by the author which would make a good introductory source for psychologists. It is insufficiently general in scope to appeal to a non-specialist audience.

References

- 1 Monsell S. Components of Working Memory underlying verbal skills: A "Distributed Capacities" view. In: Bouma H, Bouwhuis D, eds. *Attention and Performance X*. Hillsdale N.J., Lawrence Erlbaum Associates, 1984.
- 2 Baddeley A, Hitch G. Working Memory. In: Bower G, ed. *The Psychology of Learning and Motivation*. Vol 8. New York: Academic Press, 1974.

RA MCCARTHY

Viral Encephalitis: Pathology, Diagnosis and Management. By John Booss and Margaret M Esiri. (Pp 365; £39.50.) Oxford: Blackwell Scientific Publications, 1986.

The authors emphasise in their Preface that

this book has been written for clinicians. Although they suggest that the readership might consist of general practitioners as well as specialists, it is clear from the general level and approach of the book that it is really intended for neurologists and neurosurgeons, and also for pathologists with an interest in neuropathology. Throughout the book a commendable attempt is made to explain the clinical features of viral encephalitis in relation to causative organisms and pathological processes. The authors realise that it is unusual for the clinician to recognise the precise viral cause of illness in any individual patient but the emphasis of the book is on illustrating the particular features of certain characteristic infections. Clearly, in clinical practice the majority of patients with viral encephalitis are never diagnosed in the specific terms, that is, the precise causative virus is never discovered. At the present time it is arguable that if this information were to be available as a result of some yet to be invented rapid diagnostic test, management would be altered in any way and it has to be said that there appears to be little clinical role for the speciality of virology in this context. Despite this, if there is to be any improvement in the pragmatic forms of management currently used in the treatment of viral meningitis then information of this type will need to be made available since this should lead to a better characterisation of individual viral syndromes, at present lost within the overall clinical features. In this book the syndromes of viral infection of the nervous system are treated as sporadic, epidemic, parainfectious, brain stem, or sub-acute and chronic. The special situations of encephalitis and immunocompromised patients, including AIDS and in Creutzfeld-Jacob Disease receive chapters of their own. The book begins with conventional accounts of the pathological and clinical features with advice on management before launching into detailed accounts of the various forms of encephalitis under the headings enumerated above. This is a successful approach although it has to be said that the sub-division of sporadic and epidemic encephalitis seems to this reviewer to be arbitrary in the context of the clinician confronted with a patient with encephalitis late on a Sunday night when all the virologists are safely in bed! The book is to be commended in the detailed approach taken in the descriptions of the different types of viral infection. It is thoroughly well referenced and sound advice is given on basic matters such as the management of animal bites in relation to rabies exposure and in the appropriate methods of safeguarding sub-

jects at risk of preventable infections of this type. The question of brain biopsy is discussed in a full and honest way and there is a full account of the complications of common infections such as varicella. The role of electrophysiological diagnosis and of CSF examination receives adequate attention in relation to individual diseases, and, in the general sense in the introductory chapters on clinical management and diagnosis. The precautions to be taken in managing patients with Creutzfeld-Jacob Disease and, in particular, the methods of sterilisation of instruments coming into contact with body fluids of such patients, and of patients with AIDS, are properly described. The book is marred to some extent by the rather poor index and those seeking advice on the management of encephalitis in children will find that the special problems posed by this syndrome are discussed not in one place, but scattered throughout the book in relation to the various viral causes. There is no overall discussion of the childhood encephalopathies believed to be viral that lead to so much disability, despite the fact that they have received attention in a nationwide study during recent years. There have been other publications in monograph form concerned with the general problem of viral encephalitis and the present book compares well with these, although it is perhaps somewhat lacking in discussion of the basic science aspects of the processes of viral invasion of cells, and especially of the nervous system, and the mechanisms of the acquisition of immunity.

M SWASH

Benzodiazepine/GABA Receptors and Chloride Channels: Structural and Functional Properties. Receptor Biochemistry and Methodology Vol 5. Edited by Richard W Olsen and J Craig Venter. (Pp 366; £42.50.) New York: Alan R Liss Inc, 1986.

Investigations of GABA receptors and the actions of benzodiazepine drugs has provided a model by which other receptor systems should be investigated. The importance of drug action alone at these receptor sites in the treatment of seizures and anxiety might have warranted the intensity of study GABA and benzodiazepine receptors have received. However, the advances made are also a tribute to the consistent efforts of a small number of individual scientists over the past decade. The present volume charts progress in our understanding of the

organisation of the GABA receptor complex and provides a unique reference volume on this topic.

From the establishment of GABA as a neurotransmitter substance the volume turns to the characterisation of post-synaptic GABA receptors and the evidence for multiple forms of such sites. There follows a group of chapters which deal with the idea of the existence of a GABA receptor complex. This comprises not only a recognition site for GABA but also a chloride ionophore site at which some convulsant drugs act and a further site at which benzodiazepine drugs may act to modulate GABA receptor function. The characterisation and the interaction between these various sites is explored in detail. Also discussed are the important issues of receptor localisation in brain tissue and receptor purification. The development of antibodies to components of the GABA receptor complex illustrates the role molecular biology has to play in neurotransmitter receptor characterisation. Of particular interest is the continued search for an endogenous ligand for benzodiazepine receptors. This field of investigation has now provided a whole range of antagonist, agonist, partial agonist and inverse agonist compounds with which to continue to investigate the structural and functional properties of the GABA receptor complex.

Overall, an excellent book which I recommend to all those interested in this area and a valuable addition to the series of volumes on receptor biochemistry and methodology.

P JENNER

Role of RNA and DNA in Brain Function: a Molecular Biological Approach. Edited by Antonio Giuditta, Claire Zomzely-Neurath and Barry B Kaplan. (Pp 320; £41.95.) Dordrecht: Martinus Nijhoff, 1986.

This volume represents the published proceedings of the symposium entitled "Role of DNA in Brain Activity" which was a satellite meeting of the 10th meeting of the International Society for Neurochemistry held in Italy in May 1985. As such, the book suffers from the usual drawbacks of all published conference proceedings. The balance is dictated by those who were invited and accepted, there is a lack of uniformity of style and considerable repetition of background information such as the fact that in the brain something like 2 to 5 fold more genes are transcriptionally active than in

other organs. These drawbacks are all acceptable provided the meat of the book is genuinely informative and in this case, it is. This is a book worthwhile having on one's personal bookshelf and certainly in the library.

Molecular neurobiology is one of the new subdisciplines of the moment. It has not yet developed to the point when it becomes impossible to keep track of all aspects of molecular biology studies as they relate to the nervous system. This book is a useful starting point for those scientists who are contemplating applying molecular biological techniques to the study of all manner of neurobiological problems and to those wishing to have an idea of what is going on. It is a fairly comprehensive survey of what had been achieved in 1985 and although things have moved on, it is a relatively simple matter to acquaint oneself with the subsequent literature on any topic included in this book.

Several chapters deal with the complexity of gene expression in the brain, describing estimates of the number and abundance of different mRNAs, the peculiar property of the brain in having large amounts of mRNA lacking a poly A tail (we still do not know the significance of this) and a couple of chapters from Sutcliffe and Milner and colleagues and a chapter from Lim and coworkers describing studies of brain specific mRNA as a means of identifying and characterising novel brain-specific proteins (eg new neuropeptides) and for investigating mechanisms of brain-specific gene expression. One mechanism for the latter, as originally proposed by Sutcliffe, may involve specific repetitive sequences known as "identifier sequences" is discussed in one chapter but more recent literature has questioned this role for these sequences and this is just an example of how fast moving is molecular neurobiology.

There are chapters on cloning of cDNA and the study of expression of genes for several well known proteins of neurochemical interest; these are tyrosine hydroxylase, synapsin I, proopiomelanocortin (POMC), proenkephalin A, prodynorphin or proenkephalin B and tubulin. The latter is perhaps of more interest to cytoskeleton researchers who are not otherwise catered for in this volume, apart from the description by Lim *et al* of a microtubule-associated protein that appears to be abnormally expressed in foetal Down's syndrome brain. These chapters also describe *in situ* hybridisation studies, a technique which is now very popular and is likely to be as informative as immu-

nocytochemistry has proved to be in studying the brain. One chapter by Herbert and colleagues also reports on one of the first studies of regulation of neuron-specific gene expression. This is a transfection study of the upstream sequences of the POMC gene necessary for the cAMP controlled response. It is perhaps a pity that there is no chapter from one of the groups who have cloned the acetylcholine receptor.

Restriction fragment length polymorphism (RFLP) analysis is included and there are two types of hereditary conditions covered in this context, Duchenne and Becker muscular dystrophies and X-linked mental retardation. Huntington's disease is omitted. Alzheimer's disease is only now being studied by RFLP analysis but there is a useful chapter describing isolation of mRNA from postmortem brain including Alzheimer brain. mRNA isolation is the starting point for many types of molecular biological studies of human brain disease and so this chapter may turn out to have the widest appeal.

Chromatin and DNA content and their modifications in neurons are also given respectable coverage although we are still ignorant of their functional implications. Finally, there are the more speculative areas of learning associated with metabolic changes in DNA and RNA which are also given an airing. The powerful molecular biological tools now in our possession should mean that speculation will be minimised fairly shortly and perhaps the brain, like the immune system, will show us some new genetic mechanisms. Who knows, maybe one element of memory will turn out to be somatic rearrangement of genes encoding certain synaptic elements.

BH ANDERTON

The Clinical Roots of the Schizophrenia Concept. Translations of Seminal European Contributions on Schizophrenia. Edited by John Cutting and Michael Shepherd. (Pp 238; £27.50.) Cambridge: Cambridge University Press, 1986.

This book contains 19 articles by eminent German, Swiss, and French psychiatrists concerning schizophrenia and related conditions. Some are household names, starting with Emil Kraepelin (1896). All are distinguished and it is agreeable to come across writers who are now less well remembered such as Weygandt, Minkowski, and Chaslin. The clinical descriptions are masterly and makes one think that there are more Old