Book reviews

probably use different routes. In the brain it seems that the pathway via cysteine dioxygenase and through hypotaurine is the major one. The oxidation reaction which produces taurine from hypotaurine is suggested to be important in anti-oxidative function in the brain and that hypotaurine itself may contribute as an antioxidant (Tillman & Roth) but this is not the view of the authors of the next paper (Kontro & Oja). In this and other topics covered in the book, one would have preferred to be able to read of the discussions of such papers, if these occurred.

A group of papers in this metabolic section describe the peptides of taurine that have been discovered (mainly γ -glutamyltaurine) and the roles of these and of γ -glutamyl transferase are speculated upon. There is some evidence that taurine produces hypoglycaemia and the paper by Kulakowski *et al* considers a possible involvement of the amino acid with insulin receptors. The last paper (van Gelder & Barbeau) of this section describes what is the current knowledge on the involvement of taurine in osmoregulation.

The third section concentrates on the role of taurine in the heart. The topics discussed include its possible involvement as a modulator of the regulation of intracellular and extracellular Ca^{2+} . One interesting contribution describes a clinical trial on the therapeutic effects of taurine treatment in cases of congestive heart failure (Azuma *et al*). The results indicate some improvement in "clinicoradiographic score" of heart failure severity. A subsequent presentation describes an investigation on the accumulation of taurine by blood platelets; the authors conclude that it does not provide a useful indicator of taurine levels elsewhere, for example, in the heart.

The fourth section deals with taurine as a neurotransmitter or modulator. Several of the 10 papers deal with electrophysiology and neuropharmacology of the amino acid in hippocampal slices, and tend to focus upon its suggested role in affecting Cl^- conductance. Of interest to the precise functional role of taurine was the use of immunocytochemistry (based on cysteine sulphinate decarboxylase immunoreactivity) to map "taurine neurons"; the authors (Wu *et al*) suggest that taurine may function as a neurotransmitter, not only in retinal amacrine cells, but also in interneurons making synaptic contacts with pyramidal cells in the hippocampus. The introduction to this paper gives a good critical summary of current evidence on taurine as a neurotransmitter. Also of interest in this section

is the paper (Lehmann *et al*) describing the use of an implanted perfusion dialysis tube to monitor very small levels of metabolites such as taurine in cerebral extracellular fluids. They found taurine to be released to the extracellular space in "emergency situations", for example neuronal hyperexcitation and during ischaemia. They also suggest that taurine may affect Ca^{2+} homeostasis. The possible role of taurine in Ca^{2+} homeostasis was investigated (Segawa *et al*) by examining the involvement of calmodulin in the ability of taurine to modulate K^+ -evoked release of catecholamines *in vitro*. They interpret their results as indicating that taurine may act by modifying the binding of Ca^{2+} to calmodulin. The final paper in this section examines the role of taurine in thermoregulation, possibly involving hypothalamic serotonin.

The fifth section is on taurine and the retina. Here the major themes are its role in photoreceptor membrane stabilisation by preventing lipid peroxidation (Pasantes-Morales & Cruz) and its possible intervention in Ca^{2+} flux rates, from some evidence that it affects relevant retinal protein kinase activities (Lombardini).

The final section on neurological disorders includes contributions on its role in abnormal muscle function (denervated muscles and dystrophy) and especially in its potential role as an anticonvulsant. The paper by Tariello and colleagues provides a useful review of this topic and makes a plea for more clinical trials. This is followed by some experiments (Izumi *et al*) showing that taurine affects the potency of established anticonvulsants (phenobarbitone and diphenylhydantoin) and others on the improved anticonvulsant properties of lipophilic taurine analogues (Huxtable and Nakagawa). The last paper describes the GABA-like antimuricidal properties of taurine.

The concluding remarks by Huxtable summarise the progress in knowledge in this area over the past decade.

This publication, like so many proceedings of international symposia, is produced as camera-ready copy and suffers the inevitable disadvantages of this type of publication. Some of the articles suffer from the lack of editing or of sub-editing so that errors in referencing have not been picked up, and the language of some contributions (where the authors are not English-speaking) could have been improved by skilled editorial attention. Also, as much of the work presented herein will prove to be of interest to many scientists and clinicians, the lack of discussion of novel or controversial papers is disappointing, as is the dearth of

summaries or abstracts: only one-sixth of the 39 papers included these.

All in all, despite these shortcomings, the book gives a comprehensive view on the current state of knowledge about taurine.

HS BACHELARD

Experimental Allergic Encephalomyelitis. A Useful Model for Multiple Sclerosis. Progress in Clinical and Biological Research Vol 146. Edited by Ellsworth C Alvord Jr, Marian W Kies and Anthony J Suckling. (Pp 574; £52.00.) New York: Alan R Liss Inc, 1984.

This thoughtfully titled book comprises 10 sessions, each introduced and summarised by a distinguished chairman, and ends with a summary of some of the most interesting contributions. This layout helps the non-specialist, and the book should be useful to postgraduates of immunology and medicine as well as those working on autoimmunity for whom it illustrates a variety of important techniques. There are two appendices useful to the specialist. One is an up-date on the primary and secondary structure of myelin basic protein (MBP) by Martenson; the second is a summary of the species-restricted encephalitogenic determinants on MBP by EC Alvord Jr.

The main part of the book includes several sections on the mechanisms of lesion formation in multiple sclerosis and experimental allergic encephalitis. Some appear to be immunological and several papers describe the migration of inflammatory cells to the CNS. Changes in peripheral T cells such as the T4/T8 ratio appear not to correlate with multiple sclerosis relapses. An elegant paper by Tabira *et al* shows that an antigen depot is necessary for relapses in experimental allergic encephalitis, and a provocative paper by Wege *et al* describes MBP-reactive lymphocytes in JHM virus infected rats.

Several authors emphasise non-immunological factors, such as blood-brain barrier permeability and the susceptibility of MBP to enzymatic degradation. An important paper by Barna *et al* suggests that astrogliosis in experimental allergic encephalitis may be regulated immunologically, by lymphokines.

Two sections are devoted to suppression in experimental allergic encephalitis and multiple sclerosis, including a controversial paper by Werkerle describing a T cell line which suppresses experimental allergic encephalitis induced by adoptive transfer of another T cell line. Both lines are MBP reactive and W3/25 positive.

Other sections include papers on: immunogenic sites on MBP; the role of lipids in immunisation; the use of liposomes in treatment of experimental allergic encephalitis; the presence of soluble factors including oligoclonal Ig in the CSF and serum in multiple sclerosis and experimental allergic encephalitis.

A major problem with multiple sclerosis research is that clinical multiple sclerosis may represent a final common pathway of pathogenic reactions which have been initiated by a variety of genetic and environmental causes. As EC Alvord Jr points out, the early stages of multiple sclerosis are essentially unknown. Consequently much work on experimental allergic encephalitis concentrates on understanding and preventing relapses. However, multiple sclerosis may really be a progressive disease, with relapses merely the tip of the iceberg. Hopefully the new immunological techniques such as cell cloning and molecular genetic analysis will define the role of immunity in this disorder. This should facilitate analysis of the other genetic and environmental factors which are at present elusive.

WA TAYLOR

Clinical Neuropsychology—2nd Edition. Edited by: Kenneth M Heilman and Edward Valenstein. (Pp 540; £30.00.) Oxford: Oxford University Press, 1985.

This second book will not be compared directly with Kolb and Wishaw's text. The two are intended to serve quite different functions. While Kolb and Wishaw's book is intended as a text for basic as well as advanced teaching of neuropsychology, the one edited by Heilman and Valenstein is a basic source book, providing the clinician with detailed descriptions of the major neurobehavioural disorders.

There are 16 chapters. With the exception of the first (a general introduction to neuropsychology) and the last (recovery and treatment), each chapter deals with a specific syndrome or complex of syndromes. These are *Aphasia* (DF Benson), *Alexia* (RB Friedman and ML Albert), *Agraphia* (D Roeltgen), *Acalculia* (HS Levin and PA Spiers), *Body Schema Disturbances* (A Benton), *Apraxia* (KH Heilman and LJ Gonzales Rothi), *Visuospatial, Visuospacial and Visuoconstructive Disorders* (A Benton), *Agnosia* (RM Bauer and AB Rubens), *Neglect and Related Disorders* (KH Heilman, RT Watson and E Valenstein), *Callosal Syndrome* (JE Bogen), *the Frontal*

Lobes (AR Damasio), *Emotional Disorders Associated with Neurological Diseases* (KH Heilman, D Bowers and E Valenstein), *Amnesic Disorders* (N Butters and P Molitoris), *Dementia* (RJ Joynt and I Shoulson).

The use of the syndrome concept is a clear reflection of the clinical bias of the book. Implicit in the concept is the treating of each syndrome as a neurobehavioural condition isolated from other syndromes. A multi-authored text such as this further encourages such an approach. Of great value would have been a chapter attempting to provide an integrated picture of the relationships between brain and behaviour. While a daunting task, the lack of such a chapter relegates the book into a mere collection of independent, if authoritative essays.

The second edition is little changed from the first in terms of organisation and authors. The major change is the omission from the second edition of chapters on Childhood Learning Disability, and Hyperactivity Syndrome. The remaining chapters have, of course, been updated with increased emphasis on the clinicopathological correlations provided by the new generations of brain imaging techniques. Despite this, the price is high for what is essentially an occasional reference text, and may discourage individual purchasers, particularly those who already possess the first edition.

RICHARD BROWN

Epileptic Syndromes in Infancy, Childhood and Adolescence. (Current Problems in Epilepsy II.) Edited by J Roger, C Dravet, M Bureau, F E Dreyfuss and P Wolf. (Pp 350; £34.00.) London: John Libbey & Co Ltd, 1985.

This excellent book which describes the discreet syndromes of epilepsy from infancy to adolescence came from a meeting at the Centre Saint-Paul, Marseilles in 1983. It contains admirably short but comprehensive scientific accounts of the separable syndromes of epilepsy seen in the developing nervous system. The EEG illustrations are clear and appropriate and the discussion summaries are a very helpful summary of different points of view for example of the definition of the Lennox-Gastaut syndrome. For many the international classification on epileptic seizures has been only a partial solution to our communication on this subject because of the wide

differences in the significance of similar attacks as part of different syndromes. This book fully redresses the balance making the point time and again that a predicted statement on outcome can often be made at an early stage if attention is paid to this sort of syndrome definition. A huge amount of work has been done on pulling the literature together and all research workers in the fields of epilepsy and paediatric handicaps and neurology I think would be both grateful for this book and find it an essential source of reference. A great deal of the credit for the work in the book goes to certain centres of epilepsy research particularly in France and other parts of Europe. In a short but emotional preface Henri Gastaut claims a significant advance in our understanding of epilepsy and I agree with him. This is certainly one of the most interesting and useful books for a long time.

BGR NEVILLE

Core Text of Neuroanatomy. 3rd ed. by Malcolm B Carpenter. (Pp 473; £22.00.) Baltimore: Williams & Wilkins, 1985.

This is an updated edition of a popular text book of neuroanatomy, first published in 1978, and revised in 1982. It is intended for medical and basic science students, rather than clinicians and Professor Carpenter has succeeded admirably in fulfilling his aim "to explain the organisation of the central nervous system in a lucid, meaningful fashion". His extensive experience of teaching and research are evident throughout the text, which is readable, authoritative and up-to-date. In the eight years which have elapsed since the previous edition, chemical neuroanatomy has come of age, and a new range of neuroanatomical techniques have become available, and the important advances have been incorporated. The author is adept at explaining anatomy in functional terms; for example, the sections on functional organisation of the visual system, and on the basal ganglia are masterpieces of lucid exposition. Unfortunately for clinicians, this book does not cover clinical neuroanatomy extensively enough for it to compete with Brodal's classic, but that is not its brief. There can be no doubt that this text deservedly will remain a favourite on neurosciences courses.

NIGEL LEIGH