Matters arising


Motor neuron disease

We thank Leigh and Ray-Chaudhuri for a diligent update on motor neuron disease (MND). The Mexican impression of MND resistance (page 890) may be a problem of access to diagnosis and a very young population pyramid. For patients who refuse percutaneous endoscopic gastrostomy (PEG) the authors recommend oral morphine elixir, because it “relieves hunger and thirst to some extent, and may avoid the need for a nasogastric tube”. Here we underline that radiopaque polyurethane or silicon nasal tube feeding can be applied easily even in very ill patients when deep-frozen before use to stiffen the tube walls. They can be complemented with an individual rubber olive at the end of the nose. Morphine may be useful for dryness or unrest, but should not be a substitute for feeding. In our own series of 30 patients with ALS/MND, a PEG tube has always been well tolerated. It is invaluable if needed. It is contraindicated only in cases of ascites or peritonitis or if abdominal walls are impermeable to the diaphanoscopic light. Percutaneous endoscopic gastrostomy is a permanent solution for dysphagia or unremitting, and does not impair speech or respiration. In our experience, wound healing and epidermal immune functions are unaffected in patients with ALS/MND, and we have encountered a single patient out of the last 62 who was ineligible for both nasal and PEG tube.

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**NOTICE**

Progressive supranuclear palsy (PSP) (Europe) association

A small group of patients with progressive supranuclear palsy (PSP or Steele-Richardson-Olszewski syndrome as it is sometimes known) have banded together to promote research into this little known but debilitating illness and see that it receives more attention from the public and Members of Parliament. We believe as an organised group we can persuade government and donor trusts to allocate needed funds. Dr AJ Lees is chairman of our medical advisory panel.

Would neurologists please pass this information on to their patients and ask them to write to the PSP Association, 21 Church Street, Mears Askby, Northampton NN6 0DN.

MICHAEL KOE

**BOOK REVIEWS**

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Observations for centuries have revealed that patients with seizure disorders can sometimes control them by non-drug means, the example cited in the preface being the technique of limb ligation to arrest seizures, advocated, for example, by Gowers. Such “feeding” techniques became popular in the 1960s and 1970s for a variety of conditions, and epilepsy became included. There was a flurry of reports, including some from the author of the first chapter in the book, Sterman, suggesting, for example, that certain cerebral rhythms could be enhanced by operant conditioning, which would have an effect on seizures. This essentially is the starting point for a number of chapters in this book, which have to do with non-medical aspects of seizure disorders, and their treatment by behavioural means.

However, the title of this book is somewhat misleading; thus it implies that it is going to be about treatment of epilepsy, using neurobehavioural techniques, although what precisely is encompassed by that is never exactly explained. The preface goes on to state that the purpose of the volume is to “sketch a broad picture of some of the non-drug and non-surgical treatment strategies” of epilepsy, and of course, broadens the concept considerably from “neurobehavioural”.

The most appropriate chapters to suit the title are those from Sterman on sensory motor feedback, and that by Mostofsky himself on behaviour modification. Others, however, soon stray. Thus, there is a chapter on breathing training, and the relationship of breathing to seizures, and a chapter on exercise in epilepsy; the rest of the chapters move away from treatment almost altogether. There is an extremely interesting neuro-biological exploration of neuroactive steroids in epilepsy, and good review chapters on carbenital epilepsy, and nutrients in epilepsy. Other chapters include broader psychosocial issues, for example, on the role of community agencies in the comprehensive treatment of epilepsy by Berner, and the assessment of psychosocial and emotional factors in epilepsy, covered by Dodrill and Batzel. The chapter on psychogenic seizures, while a worthy read, sits uncomfortably with the overall theme of the book.

This book is perhaps better viewed as a compilation of interesting essays on some aspects of epilepsy not usually covered in other books. Unfortunately, those chapters dealing with treatment, often promise more than they can deliver. Thus, a number contain loosely reported uncontrolled trials, with imprecise outcome data hinting at, but not demonstrating, some improvement in some seizures types in some patients.

Although it may be suggested that neurobehavioural treatments in epilepsy have not been given their full due because of the overload of research funds that goes to biological mechanisms and drug treatments, a book such as this always leaves the reader wondering. Essentially, if these techniques are so good, surely they would have been adopted by a broader church, and used more in the management of epilepsy which has become difficult to control by any other means. The book may form a stimulus for further research, but it will hardly stimulate me to blow the dust off my old biofeedback machine.

MICHAEL TRIMBLE

The ability of synapses to change their properties, either by gain or loss of entire synapses or by alteration of efficiency of sig- nal transmission within individual synapses, is an essential feature of complex nervous systems that alter their response over time. While learning and memory represent perhaps the most obvious application of this "plasticity", the changes seen during develop- ment and in association with degenerative disease are also very striking. The clinical significance of synaptic plasticity is obvious; degenerative disorders of memory represent a massive workload for neurologists and an extremely expensive drain on health care resources. A book examining the molecular and cellular biology of the mechanisms of plasticity is therefore a welcome and poten- tially valuable addition if it is able to bring together the advances in the many different areas under study within this field so as to provide a coherent framework that both pro- vides insight into basic mechanisms and also goes on to suggest therapeutic approaches.

This book represents a series of reviews written by individual laboratories. The emphasis is very much on the molecular mechan- isms responsible for alteration in synaptic efficiency, with the bulk of the book con- cerned with the important phenomena of long term potentiation (LTP) and long term depression (LTD). In these phenomena, synaptic transmission is potentiated or depressed by prior experience to tetanic stimuli. Such changes in synaptic efficacy could obviously provide a mechanism of altering the pathway responses based on pre- vious experience and so provide a synaptic pathway capable of "learning". The elucidation of the channels involved and the central role of calcium and NMDA receptors has been a tremendous advance over the past few years and the work has provided new approaches of memory disorders. This work is well described and clearly referenced, with additional chapters on the functional impli- cations for those who wish to pursue the subject in further depth.

Outside the areas of LTP and LTD, there are two chapters in this book examining other areas of plasticity that I enjoyed partic- ularly. Firstly, Dr Rose provides a lucid account of learning in a valuable model sys- tem, the newborn chick. While many will be concerned that the complexity of this system will make it difficult to dissect the molecular mechanisms of learning, there is no doubt that the chick provides an excellent example of learning in a higher vertebrate and one that should be of great value to those explor- ing therapeutic approaches to learning disor- ders. Secondly, a chapter by Dr Steward covers another aspect of plasticity; the evi- dence for local synthesis of synaptic protein. Given that any neuron has many dendrites, all of which have synapses from different inputs and all of which can potentially be altered by experience, it follows that the cell has the difficulty of regulating many differ- ent synapses individually. There is growing evidence that, at least in part, this is per- formed by local synthesis of synaptic protein within the dendrites. This is quite different from the more general process of protein synthesis around the nucleus and subse- quent translocation to the site of insertion. A method using local synthesis allows greater flexibility as each area could be individually controlled. The evidence for this has emerged largely from Dr Steward's labora- tory in Charlotteville, Virginia and is described very clearly in his chapter. It is important work that may provide some of the answers as to how individual neurons can be so flexible in their response.

There are, however, a number of other areas of synaptic plasticity that are covered in rather less detail. Development is associ- ated with considerable synaptic change, as shown very clearly by the in vivo studies of single mouse neuromuscular junctions, over many weeks, in living animals by Lichmann and colleagues at Washington University, St Louis. The mechanism by which this change occurs is very important, and I was disapp- ointed to see so little attention paid to development in this book. There is only a short chapter, which concentrates on the role of the extracellular matrix and the mechanisms of stabilisation. I would have enjoyed a more detailed review of the evi- dence for plasticity as a key developmental process. Another area of research that has added to our understanding of learning and memory is studies in the sea slug, Aplysia, by Kandel and colleagues at Columbia University, New York showing a fascinating range of electrical and structural changes associated with learning. This work illus- trates very clearly the value of studying sim- ple models of the brain, and a review would have had a valuable contribution to this book.

Overall, then, I enjoyed the book and found the chapters well written and informa- tive. I was, however, disappointed by the omissions. I do not think this book is appro- priate for general readership in light of its rather focused approach. It will provide a valuable source of reference for students of learning and memory and would be a valu- able addition to specific libraries, but it is not a book to buy for your bookshelf at home.

CHARLES FFRENCH-CONSTANT


The appearance of this now classic text in the 1970s helped establish neuropsychology as a field of neuroscience. Since then, the subject has grown rapidly. The development of behavioural neurology and neuropsychia- try creates a need for neurologists and psy- chiatrists to become acquainted with neuropsychology.

The main branch of neuropsychology nowadays is cognitive. Theoretical models are constructed which attempt to explain nor- mal mental processes, while elucidation of the neuroanatomical structures involved is given somewhat less prominence. Walsh, however, adopts a "psychoanatomical" approach, that is, the study of brain dam- aged patients primarily to understand the neuro-anatomical localisation of psychologi- cal function; this is felt to be more useful in helping the clinician understand individual cases. The concept of the "distributed anatomical system" is described, in which each psychological function utilises several interconnected anatomical sites. Similarly, individual cortical areas are involved in sev- eral psychological functions. Although this muddles the waters of localisation of func- tion, it is a more realistic representation of cognitive function.

In line with this anatomical stance, each lobe has a separate chapter. This leads to distributed cognitive functions, such as memory, being described in several chapi- ters. An alternative division on the basis of cognitive functions, for example memory, language, would make cognition less intimi- dating to the beginner. As the psy- choanatomical approach has been largely superseded by cognitive neuropsychology, the references are somewhat dated.

The book will prove useful to psycholo- gists as an introduction to the field, although they may be more comfortable with the cognitive approach. By contrast, clinical neurologists, given their neuro- anatomical training, may find the cognitive method initially somewhat alien to the med- ical mind, and may find the brain-behaviour approach a more useful introductory approach to neuropsychology.

JOHN GREBNE

SHORT NOTICES

