

- 2 Green PE, Srinivasan V. Conjoint analysis in consumer research: issues and outlook. *Journal of Consumer Research* 1978;5:103-23.
- 3 Green PE, Rao VR. Conjoint measurement for quantifying judgmental data. *Journal of Marketing Research* 1971;8:355-63.
- 4 Harwood RH, Rodgers A, Dickinson E, Ebrahim S. The London handicap scale: a new outcome measure in chronic disease. *Quality in Health Care* 1994;3:11-6.

Motor neuron disease

We thank Leigh and Ray-Chaudhuri¹ 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 tubes can be applied easily even in sensitive patients when deep-frozen before use to stiffen the tube walls. They can be complemented with an individual rubber oliva at the entry of the nose. Morphine may be useful for dyspnoea 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 invisible if not needed. It is contra-indicated only in cases of ascites or peritonitis or if abdominal walls are impermeable to the diaphanoscopic light. Percutaneous endoscopic gastrostomy is a permanent solution and a small procedure, 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 not encountered a single patient out of the last 62 who was ineligible for both nasal and PEG tube.

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- 1 Leigh PN, Ray-Chaudhuri K. Motor neuron disease. *J Neurol Neurosurg Psychiatry* 1994; 57:886-96.

Leigh and Ray-Chaudhuri reply:

The comments of Westarp and Kornhuber are helpful, and in principle we agree with them.

We were not suggesting that oral morphine should substitute for adequate feeding, and percutaneous endoscopic gastrostomy (PEG) is clearly the method of choice whenever possible. Nevertheless, there are a few patients in whom PEG is either not practicable or is refused, and who prefer not to have a nasogastric tube. This may only be for a few days towards the end of life. These patients should certainly be hydrated as well as possible, but the decision as to the most humane way to do this should be made (if possible) in joint discussion with the patient, the carers, and the physicians.

Oral morphine can, however, be helpful in relieving distress due both to ventilatory insufficiency and hunger when patients choose a palliative rather than a more active

approach to the management of their disease.

In summary, we are not suggesting that morphine should be used as a long term substitute for adequate hydration and feeding, and we entirely endorse the use of PEG wherever possible. Our policy is to avoid a nasogastric tube whenever possible, but we agree that sometimes it may be necessary to resort to this.

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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 Asky, Northampton NN6 0DN.

MICHAEL KOE

BOOK REVIEWS

All titles reviewed here are available from the BMJ Bookshop, PO Box 295, London WC1H 9TE. Prices include postage in the United Kingdom and for members of the British Forces Overseas, but overseas customers should add £2 per item for postage and packing. Payments can be made by cheque in sterling drawn on a United Kingdom bank, or by credit card (Mastercard, Visa or American Express) stating card number, expiry date, and your full name.

The Neurobehavioural Treatment of Epilepsy. Edited by D I MOSTOFSKY and Y LOYNING. Publishers: Lawrence Erlbaum Associates, New Jersey 1993. (Pp 350; £46.95). ISBN 0-8058-1106-0.

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 "feed back" 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, which, 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 catamenial 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 review, 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 seizure types in some patients.

Although it may be suggested that neurobehavioural treatments in epilepsy have not been given their full due, because of the overabundance 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

Synaptic Plasticity—Molecular, Cellular, and Functional Aspects. Edited by MICHEL BAUDRY, RICHARD F THOMPSON and JOEL L DAVIS. Published by The MIT Press, London 1994. (Pp 258; £44.95). ISBN 0-262-02359-8.

The ability of synapses to change their properties, either by gain or loss of entire synapses or by alteration of efficiency of signal transduction 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 development 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 potentially 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 provides 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 firmly on the molecular mechanisms responsible for alteration in synaptic efficiency, with the bulk of the book concerned 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 efficiency could obviously provide a mechanism of altering the pathway responses based on previous 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 implications 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 particularly. Firstly, Dr Rose provides a lucid account of learning in a valuable model system, 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 exploring therapeutic approaches to learning disorders. Secondly, a chapter by Dr Steward covers another aspect of plasticity; the evidence 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 different synapses individually. There is growing evidence that, at least in part, this is performed by local synthesis of synaptic protein within the dendrites. This is quite different from the more usual mechanism of protein synthesis around the nucleus and subsequent 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 laboratory in Charlottesville, 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 associated 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 disappointed to see so little attention paid to development in this book. There is only one 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 evidence 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 illustrates very clearly the value of studying simple model systems, and a review would have been a valuable contribution to this book.

Overall, then, I enjoyed the book and found the chapters well written and informative. I was, however, disappointed by the omissions. I do not think this book is appropriate 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 valuable addition to specific libraries, but it is not a book to buy for your bookshelf at home.

CHARLES FRENCH-CONSTANT

Neuropsychology—A Clinical Approach. Third Edition. By KEVIN WALSH. Published by Churchill Livingstone, Edinburgh 1994. (Pp 465; £29.95). ISBN 443049378.

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 neuropsychiatry creates a need for neurologists and psychiatrists to become acquainted with neuropsychology.

The main branch of neuropsychology

nowadays is cognitive. Theoretical models are constructed which aim to explain normal 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 damaged patients primarily to understand the neuro-anatomical localisation of psychological 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 several psychological functions. Although this muddies the waters of localisation of function, 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 chapters. An alternative division on the basis of cognitive functions, for example memory, language, would make cognition less intimidating to the beginner. As the psychoanatomical approach has been largely superseded by cognitive neuropsychology, the references are somewhat dated.

The book will prove useful to psychologists 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 medical mind, and may find the brain-behaviour approach a more useful introductory approach to neuropsychology.

JOHN GREENE

SHORT NOTICES

Readers may be interested in: **Alcohol and Alcohol Problems.** Edited by G EDWARDS and T J PETERS. (Pp 240 illustrated; £49.95.) Published by Churchill Livingstone, Edinburgh 1994. ISBN 443051518.

Biomagnetic Stimulation. Edited by SHOOGO UENO. (Pp 136; \$65.) Published by Plenum Press, New York 1994. ISBN 0-306-44707-X.

Neutral Activity and the Growth of the Brain. By DALE PURVES. (Pp 108; £24.95 H/b, £11.95 P/b.) Published by Cambridge University Press, Cambridge 1994. ISBN 0-521-45496-4 H/b 0-521-45570-7 P/b.