investigation. Physicians must understand the tools available to supplement the basic neurological assessment, in order to select them appropriately and to evaluate properly the information they provide. In this context, this book serves a useful purpose and can be recommended to both physicians and neuropsycholgists alike.

Sandra E. Black,
Toronto, Ontario

TRAUMATIC HEAD INJURY IN CHILDREN. 1995. Edited by Sarah H. Broman, Mary Ellen Michel. Published by Oxford University Press – Canada. 299 pages. $C65.00

This book evolved from a 1993 conference on head injury in childhood at the National Institute of Neurological Disorders and Stroke in Bethesda, Maryland. The purpose is to evaluate the current state of knowledge about consequences of traumatic head injury in childhood and to identify sources of variability in outcome found in studies of both severe and mild injury". This objective is achieved in 16 chapters.

The book is organized in 4 parts. Part 1 deals with key issues, including a developmental perspective on outcome, epidemiological features of brain injury in children, and pathophysiological responses of the child's brain following trauma. Part II, "The Data", has chapters on behavioural sequelae, neurobehavioural outcome, discourse as an outcome measure, the UCLA study of mild closed head injury, mild head injury in the British Birth Cohort, attention deficits after injury, and the role of the family in recovery from brain injury. Chapters in Part III are a twenty-three year followup study, lessons for the study of pediatric head injury outcome based on recovery of function in adults, evaluating efficacy of rehabilitation after pediatric traumatic brain injury, and the prospect of pediatric clinical trials. Part IV, "Commentary" includes implications for clinical care and cognitive neuroscience, and a summary of progress in recent years.

Several chapter authors point out the problems involved in doing outcome studies after head injuries in children. Studies need to be prospective, take into account the mechanism of injury, ensure adequate numbers of children of all ages (0 to 14 or 0 to 18?), clearly define when the Glasgow Coma Score or a pediatric modification are to assessed, include information about the child's pre-morbid function, utilize standard imaging studies, and use assessment strategies that take into account the normal acquisition of skills as a child develops. The definition of mild head injury based only on the Glasgow Coma Score may need to be changed. Evidence in the literature suggests that a GCS of 13 may indicate a more severe injury than a GCS of 14 or 15. The quality of the studies included in this book is variable, the reader needs to critically evaluate the weighting given to each.

A strength of this book is pointing out new avenues to explore, such as the use of functional imaging methods, using models of intraindividual change, studying the processing of information, and looking at therapies such as hypothermia, dextromethorphan and free radical scavengers. I recommend this book to pediatric neurologists and neurosurgeons, developmental pediatricians, child and adult psychiatrists, rehabilitation specialists, as well as psychologists and neuropsychologists. Despite the flaws in the studies, it is the best summation of the "state of the art" in pediatric head injury outcome information to date.

Terry Myles,
Calgary, Alberta

THE NMDA RECEPTOR. 1994. SECOND EDITION. Edited by G.L. Collingridge and J.C. Watkins. Published by Oxford University Press. 503 pages. $C80.95

Only one type of the four types of receptors activated by glutamate is covered in this book. This may seem rather specialized, and not all clinicians will rush out and buy this volume. But then, how is a clinician supposed to understand glycine encephalopathy, without some idea of how glycine acts in the nervous system, especially on the NMDA receptor? The chapters on the role of the NMDA receptor in learning and memory, epilepsy, and other arenas in the clinical sphere will attract the academic clinician in any area of clinical neuroscience. Fundamental insights into the actions of glycine, and glutamate, in both normal and pathophysiologic situations are contained between the covers. Black holes in knowledge of excitatory amino acid action will result if the neuroscience researcher ignores this book. For example, D- and L-glutamate are an exception among enantiomeric pairs, in that they are roughly equally potent at the NMDA receptor. The relatively low toxicity of naturally occurring gluatmate or aspartate versus their N-methylated and other congeners is not explained by receptor-ligand interaction, but by lack of uptake of the artificial ligands by the axonal high affinity glutamate uptake system. The regenerative, self-sustaining, or "run-away" positive feedback depolarization of the NMDA receptor is explained at several points in the book. As a reference work for those working in any field related to EAA and NMDA receptors, this book is invaluable. Much of the history of the field of excitatory amino acids is contained within this book. I recommend it to the neuroscience researcher, as well as the clinician who wishes to have a reference work on the NMDA receptor on the bookshelf.

R. Auer,
Calgary, Alberta

PEDIATRIC CLINICAL ELECTROMYOGRAPHY. 1996. By H. Royden Jones, Jr., Charles F. Bolton and C. Michel Harper, Jr. Published by Lippincott-Raven. 487 pages. $C127.00

This is a book for electromyographers investigating pediatric neuromuscular patients. Basic knowledge is assumed and electrode and needle sites and techniques are not repeated. Added tips are given for approach to the infant and child where cooperation and short inter-electrode distances are limiting factors in procedure duration and test reliability. Tables comprising age controlled, normative data from different authors for motor and sensory responses, F waves, H reflexes, blink reflexes, phrenic

nerve latencies, electromyography (EMG) and single fibre EMG are given.

Chapter 2 reviews the floppy infant and chapters 2-8 review the clinical scenarios at different sites along the motor unit. The electromyography of the floppy infant is a descriptive chapter with all possible etiologies given. At times investigations of disorders given later in the specific chapter are repeated here. The clinical and molecular genetic information on spinal muscular atrophy (SMA) is limited. EMG and muscle biopsy findings in arthrogryposis multiplex congenita is discussed. A protocol for evaluation of the floppy infant is given, emphasizing the need to examine sensory nerves and consider the neuromuscular junction.

The chapter on spinal muscular atrophies is clear and concise. The approach to plexus and nerve root lesions is well laid out with anatomical diagrams. An up to date discussion of the controversy surrounding surgery for neonatal brachial plexus injury is given together with insight into how the medico-legal system in the United States influences the investigation of this injury. The chapter on mononeuropathy is complete and descriptive with a portion told in the first person. It would have been useful to outline electrode placement of some of the more unusual nerves. Abbreviations could be less and "pediatric" is used more than is necessary in a pediatric book. Polyneuropathies are well discussed with clinical information of the various etiologies juxtaposed with electrophysiological findings. The high-low syndrome (indicating the need for a high electrical stimulus to elicit a low nerve conduction velocity) is perhaps overemphasized. The discussion of neuromuscular transmission disorders includes the effects of maturation and an approach on how to successfully test the congenital myasthenic syndromes and infant botulism as well as autoimmune myasthenia gravis. The chapter on myopathies places the need for EMG and muscle biopsy into perspective, in the light of molecular genetic diagnosis of dystrophinopathies and myotonic dystrophy. Presented are the electrophysiological findings in myopathies of all etiologies, myotonia and paramyotonia. Both of these chapters are well written, with up to date references and are easy to read.

EMG in the critical care unit (CCU) underlines the author's particular interest and gives an outline of possible investigations in CCU situations including the neuromuscular complications of sepsis, steroids and neuromuscular blockade. Inclusion, by this author, of electrode and needle placements for testing the phrenic nerve and diaphragm would have been helpful.

Throughout the book there are 39 case reports with diagnoses to highlight the topic just reviewed. They are fairly straightforward but do usually reinforce a relevant point.

They excellent feature of the book is its inclusive nature around different clinical situations, giving both clinical and electrophysiological features together, which will make it a very good reference for the electromyographer in both usual and unusual situations. Also the book will likely give most readers a few unconsidered etiologies for previously undiagnosed patients.

Coleen Adams,
Calgary, Alberta

PAIN MANAGEMENT: THEORY AND PRACTICE. 1996. By Russel K. Portenoy, Ronald M. Kanner. Published by F.A. Davis Company. 357 pages. $C129.00

This is volume 48 in the Contemporary Neurology series. The authors are internationally recognized leaders in the field of pain management. They are also both neurologists. They have gathered together 10 other world-class contributors.

As neurologists and neurosurgeons we find that acute and chronic pain is commonly encountered and yet may also have experienced little education specifically aimed at the study of pain itself, but more often pain as a symptom of particular syndromes and diseases. Many neurological and other texts have given little attention to pain and its management. Because this book is affordable, comprehensive yet concise, and written by neurologists, it is worthy of a thorough review in this journal.

Each chapter is prefaced by a useful summary of its contents. Chapter 1 deals succinctly and clearly with the basics, that is, definitions, characteristics of pain, and pain assessment. Without such basic information, such as the use of simple rating scales of pain severity, it is difficult to evaluate and follow patients with acute and chronic pain. Definitions of confusing terms such as allodynia, hyperpathia, and hyperalgesia are clarified according to internationally accepted criteria.

Chapter 2 is a good overview of basic pain mechanisms. Of particular interest to neurological clinicians here is an explanation of the phenomenology of the varieties of neuropathic pain such as the widespread areas of skin sensitivity with isolated nerve or root injury and the paradox of evoked pain from apparently anaesthetic skin. A clear, concise explanation of the nature and importance of endorphins is also part of this chapter. Chapter 3 is a brief discussion of the epidemiology of pain in children and adults and in different settings outlining some problems with this type of data. Chapter 4 is on headache and facial pain, and whereas this is accurate and comprehensive, it is information that is likely readily available in other texts in the neurological clinicians library. Chapter 5 is an excellent comprehensive account of neuropathic pain including reflex sympathetic dystrophy, phantom limb pain, brachial plexus avulsion, postherpetic neuralgia, painful neuropathies, and central pain syndromes resulting from spinal cord, brainstem, and cerebral lesions. Unusual cranial neuralgias are also part of this section, tic doulourcux being dealt with in Chapter 4. A reasonable approach to the evaluation and therapy of low back pain is found in Chapter 6. The difficult and contentious areas of fibromyalgia and myofascial pain is well covered in Chapter 7. Chapter 8 is useful for neurological clinicians because it deals with the pathophysiology, assessment, and treatment of arthritis and painful bone diseases. Chapter 9 is by Kathleen Foley who has, for years, been a leader and advocate for the better management of cancer pain. Her chapter gives a detailed account of all the painful problems arising from cancer and its treatment.

The therapy of pain (part 3) occupies more than 1/3 of this volume. Chapter 10 covers nonopioids and adjuvant analgesics, the latter in ten categories, with practical guidelines for each. Opioid analgesics are covered in Chapter 4 by Dr. Portenoy, one of the world's experts and opinion leaders in this area. This