qualify them for this specific rubric which is traditionally defined in part as nonprogressive diseases. Specificity is a precious scientific treasure and should not be degraded to generality. I also found the discussion of congenital muscle fibre-type disproportion (CMFTD) to be misleadingly incomplete because only the pure congenital myopathy was discussed, and the broad differential diagnosis of this syndrome defined by muscle biopsy was not presented, though brief mention was made that CMFTD may accompany some other specific myopathies. The important association with cerebellar hypoplasia was not noted, and is an example of a nongenetic cause of this congenital myopathy. I also disagree with the statement that CMFTD exhibits well documented transmission as either an autosomal recessive or dominant trait. The autosomal dominant form is poorly documented and, in my experience, many of these patients later are proved to have autosomal dominant nemaline rod myopathy.

Chapter 6 deals with myotonic disorders and presents modern concepts of ion channel defects. Other chapters address various childhood neuropathies, spinal muscular atrophy, and issues of rehabilitation including orthopaedic treatments with emphasis on scoliosis, respiratory physiology in neuromuscular diseases and home ventilation. Final chapters deal with molecular genetic prenatal diagnosis and genetic counseling.

In general, I found this book to be authoritative, particularly in the presentation of molecular and genetic information, and would recommend it to paediatric neurologists and especially to those with a particular interest in neuromuscular disorders, despite some concepts with which I disagree. Even these provide intellectual stimulation if one already is familiar with the diseases. I do not know how available the volume will be in Canada, but surely it can be special ordered from a medical bookseller.

Harvey B. Sarnat
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MAGNETIC RESONANCE IN MULTIPLE SCLEROSIS. 1997. By David H. Miller, Jürg Kesselring, W. Ian McDonald Donald W. Paty and Alan J. Thompson. Published by Cambridge University Press. 200 pages. $C110.50

This book, written by an internationally renowned group of multiple sclerosis experts is a welcome addition to multiple sclerosis literature. Using a well organized approach, the authors thoroughly review the key areas of magnetic resonance imaging as it relates to multiple sclerosis. The book covers the impact of magnetic resonance imaging (MRI) in multiple sclerosis, magnetic resonance techniques, spectrum of abnormalities in multiple sclerosis, differential diagnosis, role of MRI in assigning prognosis, MRI's impact on understanding pathogenesis and mechanisms of disability, and use of MRI in clinical trials.

The book assumes a basic understanding of the underlying principles of magnetic resonance imaging. The chapter on techniques primarily focuses on conventional imaging although newer techniques such as fast magnetic resonance imaging, magnetisation transfer imaging, and magnetic resonance spectroscopy are also included. The role of functional MRI in multiple sclerosis (MS) is not discussed. The MRI findings in specific sites particularly germane to the study of multiple sclerosis (optic nerve and spinal cord) are nicely reviewed. The chapter covering the spectrum of abnormalities in multiple sclerosis is thorough and well written. Its only omission is failure to include MS variants of Balo, Schilder and Marburg.

The chapter on differential diagnosis is extremely comprehensive and includes not only mindful discussion of MRI findings of relevance to the differential diagnosis of MS but also frequently mentions distinguishing clinical, evoked potential and CSF findings. The chapter on assigning prognosis covers MRI abnormalities in healthy individuals, healthy relatives of patients with multiple sclerosis, clinically isolated syndromes (including subsequent risk of developing multiple sclerosis and risk of disability) and risk of disability in established multiple sclerosis. A separate chapter provides interesting insights into the biology of multiple sclerosis and discusses the role of MRI in advancing understanding of the pathological evolution of lesions in multiple sclerosis including disruption of blood brain barrier, inflammation, demyelination, gliosis, and axonal loss. A final chapter addresses the utility of MRI in clinical trials and reviews natural history, serial MRI studies, implications of clinical MRI relationships, MRI results from clinical trials performed to date and provides practical recommendations for the use of MRI in clinical trials. Specific helplful guidelines are provided in three appendices.

The book is generally very well written and highly readable. There is overlap between some chapters but often this serves to reinforce important points. The book is extensively referenced up to 1996 and accurately indexed. Tables are well used throughout the book to summarize concisely significant findings. The MR images are generally of high quality although some appear somewhat out of focus.

In summary, this is an excellent, up-to-date and thorough review of magnetic resonance in multiple sclerosis. It is to be highly recommended to neurologists, neuroradiologists and neuroscientists with an interest in MS.

Marika Hohol
Toronto, Ontario.

THE NEURON: CELL AND MOLECULAR BIOLOGY 2nd EDITION. 1997. By Irwin B. Levitan & Leonard K. Kaczmarek. Published by Oxford University Press. 543 pages. $C66.95

We are in the midst of a revolution in the diagnosis and treatment of neurological disorders based on the spectacular developments that have occurred in neuroscience today. To have a grasp of the fundamental science underlying our rapidly changing clinical world, this book fits the bill. Levitan and Kaczmarek are two internationally recognized cellular neurobiologists. The first edition of this book was published in 1991 and the profound changes in the second edition reflect the developments in neuroscience research over the past several years. They emphasize the unity of cellular biological mechanisms from invertebrate to vertebrate preparations. There is no doubt that the application of concepts from fundamental cell biology to the nervous system has laid the foundation of our understanding of neurological diseases today. These concepts are well described in this book. For example, much of our understanding of the cellular mechanisms of learning and memory come from important work done on the marine sea slug. The book is very up-to-date and the concepts are very clearly presented with diagrams that are simple and easy to understand. Some interesting historical context is given.

This book does not specifically address the foundations of neurological disease, but rather gives one an understanding of the fundamentals of neurobiology. Like any introductory book of this nature, not all subjects can be covered in depth. For example, it is assumed that the reader understands some molecular biology, which

may not be the case for all of us. The roles of neuronal dendrites and glial cells are little discussed. It is very strong in cellular electrophysiology and in neuromodulatory mechanisms.

Overall I consider this to be an outstanding, easily readable, and quite up-to-date overview of fundamental neurobiology. This book is quite useful for the clinician who wishes to have a digestible presentation of basic neuroscience as a prelude to understanding neurological disease.

Peter L. Carlen
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NEUROPROTECTION IN CNS DISEASES. 1997. Edited by P.R. Bar and M. Flint Beal. Published by Marcel Dekker Publishers. 585 pages. $C241.00

Neuroprotection has come of age. The 585 pages of this volume attest to this. The first part deals with the basic components of the nervous system, including neurons, glia and the brain blood barrier, key substances and in vitro and in vivo models of neuroprotection. The second part deals with acute neurological diseases and the third with chronic neurological diseases.

In addition to the specific information in each chapter, several themes emerge: 1) Most substances essential for life also have potential for damage. Calcium ions, neurotransmitters and cytokines fuel normal function, but released from tight control, harm the very environment from whence they come. 2) Glia are much more than "glue" for the nervous system. They guide the development of neurons, maintain their function and help their repair Additionally, glia and neurons may communicate, neurons responding to intracellular calcium waves travelling through astroglia. 3) A large gap remains between the laboratory and the bedside. In stroke, over 100 compounds reduce ischemic damage experimentally, but none has yet been proven effective in randomized clinical trials; but the time is nearing.

In a book of 29 chapters one can expect uneven quality, and one finds it. However, a common feature is succinctness and emphasis on basic principles. Thus, one finds gems such as Detsai et al.'s chapter (16) on glia, Marshall and Kieburtz chapter (19) on the design and interpretation of clinical trials in neuroprotection and Vanderworp et al.'s chapter (20) on the medical treatment of acute ischemic stroke.

Overall the book is too bulky, specialized and expensive to recommend to the practising neurologist, but it can be recommended for the neurological library as a good introduction and inventory of a fast-moving field.

Vladimir Hachinski,
London, Ontario

NEUROINFLAMMATION. 1998. Edited by Paul L. Wood. Published by Humana Press. 375 pages. $C188.50

Most dogmas are wrong. Until recently, the brain was considered an "immunologically privileged" organ. This book shows that it is not, and that neuroinflammation may mediate the damage in a host of neurological disorders, from multiple sclerosis to Alzheimer's disease. The volume includes five parts: 1) Microglia 2) Acute phase proteins 3) Cytokines 4) Free radicals 5) Miscellaneous mediators, including adhesion cell molecules, nitric oxide and cyclo-oxygenase.

We learn that microglia are critical in the defence and clean-up of the brain, but if chronically activated, may lead to neurodegeneration. Interestingly, microglia can be activated remotely in areas devoid of neurodegeneration, also, microglial activation preceeds neuronal loss in Down's syndrome.

Contrary to received wisdom, all components of both the classical and alternative complement pathways are found in the brain and cerebral spinal fluid. Sustained complement activation may be key process in myasthenia gravis, multiple sclerosis and Alzheimer's disease. Nitric oxide is the Dr. Jekyll and Mr. Hyde of the brain, essential physiological modulator in health and deadly neurotoxin in disease.

The utility of this volume lies in bringing together research dispersed in a myriad of specialized journals and focusing it on neurodegeneration. While some details may escape a neurologist's comprehension, the main message is clear enough: neuroinflammation is important in brain injury and neurodegeneration and we must think more about common mechanisms and less about distinct diseases.

Vladimir Hachinski,
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NEONATAL CEREBRAL ULTRASOUND. 1997. By Janet M. Rennie. Published by Cambridge University Press. 248 pages. $C117.00

This book has 12 chapters covering the physical principles of sonography and doppler ultrasound; the choice, maintenance and use of equipment; the normal and pathological appearance of the brain; and appearance of both the term and the immature brain. Additionally there is an attempt to correlate ultrasound features and prognosis. A glossary and an index are also included.

The first chapter contains adequate information and is easy to read. With the current rapid development of sonography, some of the information on equipment in Chapter 2 is bound to be somewhat out-dated in a few years, but the basic principles, particularly those dealing with quality control and artifacts, will continue to be of value for a longer period of time. I was surprised however, to see in the photos under the headline "Safe use of ultrasound equipment", that the examiner holds the transducer to the fontanelle of the infant without a supporting finger on the adjacent bone. A sudden movement of the infant's head or of the transducer may result in unnecessary pressure on the fontanelle.

In Chapter 3 "Normal appearance", unfortunately only the conventional planes acquired through the anterior fontanelle are described. Other acoustic windows, such as the posterior fontanelle for additional coronal views, the sphenoidal fontanelle and the squamosal suture for axial views of the mesencephalon and third ventricle, and the mastoid fontanelle for coronal and axial views of the posterior fossa contents are needed to evaluate the complex anatomy and the pathology of the brain. These added views are obviously easier in the very young infant due to the size of the fontanelles and state of the sutures.

Chapter 4 gives a good overview of the immature brain, which is important to the sonographer, and emphasizes the fact that gestational age is of paramount importance to the interpretation of the ultrasonogram. For example, a smooth cortex may indicate lissencephaly in the full term infant, but may reflect a normal developmental stage in the very premature infant.

Chapter 6 gives a thorough introduction to the complex issue of