Book Reviews

THE CEREBELLUM AND NEURAL CONTROL. First Edition. By Maseo Ito. Published by Raven Press, New York. 580 pages. $75.00

This monumental work by Maseo Ito is a thoughtful state-of-the-art review of what is known about the cerebellum and its function. The volume is well referenced with a seventy-four page bibliography following the main text.

In his introduction, Dr. Ito proposes three questions: how is the cerebellum constructed, how does the cerebellar neuronal circuitry operate, and what does the cerebellum do? The remainder of the book attempts to answer these questions.

The book is divided into four parts. Part 1 deals with the anatomy and physiology of the cerebellar cortical network. Individual chapters are dedicated to mossy fibres, climbing fibres, granule cells, and other features of the cerebellum. Part 1 then ends with a chapter on the neuronal network model, including a discussion of long term depression in parallel fibre-Purkinje cell synaptic transmission in response to simultaneous climbing fibre inputs.

Part 2 of the book builds up to a discussion of cerebellar microzones and corticonuclear microcomplexes. A cerebellar microzone is defined as a set of Purkinje cells which projects to a distinct group of target neurons, and receives input from a small group of neurons in the inferior olive, in addition to mossy fibre inputs. A corticonuclear microcomplex is defined as a cortical microzone and an associated small group of cerebellar nuclear neurons which are dedicated to a single function (autonomic or somatic).

Part 3 discusses cerebellar control systems, with detailed discussions of the major afferent and efferent connections of the cerebellum, and ends with a long chapter on control system models of the cerebellum. The frequent use of excellent diagrams makes this chapter clear and understandable.

Part 4 deals with cerebellar functions, and includes detailed chapters on the vestibulo-ocular reflex, saccade and smooth pursuit eye movements, posture, voluntary limb movements and behavior, and a final chapter on neurological symptoms. A particular strength of Dr. Ito's book is the frequent use of precise definitions. Hence, dysmetria is defined as inaccuracy of a goal directed movement to be performed in a predictive manner without feedback correction. It therefore represents a failure of an open loop motor control system. Incoordination is defined as an inability to integrate multiple component movements into a purposeful compound movement. It may therefore represent a disturbance in multivariable control systems which handle multiple input-output relations.

In the epilogue, Dr. Ito states that he has attempted to generalize the idea that the cerebellum acts as the central callibrator for various reflexes and central controls. His book has achieved this objective well, and it is a major reference work. Its excellent bibliography will prove invaluable to those who wish to search the literature further for themselves. At the same time, however, Dr. Ito's book is a large volume and the casual reader without a special interest in motor control physiology will likely soon turn to shorter and less detailed texts.

W.J. Becker
Calgary, Alberta

NEURO-OPHTHALMOLOGY: CLINICAL SIGNS AND SYMPTOMS. By T.J. Walsh. Published by Lea & Febiger, 1985. 499 pages.

This book is intended to fill a gap between encyclopaedic reference texts and introductory texts in Neuro-ophthalmology. Unfortunately, *Neuro-ophthalmology: Clinical Signs and Symptoms* falls into this gap rather than filling it. It is directed at residents and practicing physicians, but does not provide enough information for beginners and it does not satisfy the requirements of readers who, having some familiarity with the field, wish to expand their knowledge.

The text is organized into seventeen chapters according to symptoms and signs. Pathophysiology is generally ignored, so that understanding of the rational for diagnosis and management cannot be gleaned. Despite the efforts of nine other contributors, whose chapters are well written (the sections on retinal disease and neuro-radiology are particularly lucid and didactic) the bulk of the book is written in an anecdotal and disorganized style. There is little reference to the current literature; again and again the author give his opinions without discussion of major controversies or alternative views. Worse, misinformation pervades the work. For example, the author states that the Riddoch phenomenon occurs only in occipital lobe field defects; that slow patient responses cause arcuate visual field defects; that one can see the optic nerves via a transphenoidal approach to pituitary adenomas; that optic atrophy does not occur in Friedreich's ataxia; that hydroxycobalamine is readily absorbed from the gut in pernicious anaemia; that partial ophthalmoplegia has the same diagnostic implications as total third nerve palsy; that vascular disease causes the Foster Kennedy Syndrome; that digital venous angiography gives as much information about the internal carotid as does the direct carotid angiography; and so on. The chapter on diplopia is not accompanied by explanatory illustrations, making it comprehensible only to those who are fully conversant with strabismus. A chapter on the facial nerve addresses only facial palsy, with no reference to hemifacial spasm, facial dystonia or other facial dyskinesias. A chapter is devoted to unusual chromosomal disorders; although the section is informative, the book lacks any discussion of neurogenetics or immunogenetics in ophthalmology.

Among the clinical neurological sciences, Neuro-ophthalmology is unsurpassed in the precision whereby principles of anatomy and physiology are applied to diagnosis and management. This book does not convey that message. Although the sections on radiology and retinal disease are among the best concise reviews I have encountered, overall, this book cannot be recommended to neurologists, neurosurgeons, ophthalmologists, or their residents, either as a primary or reference textbook.

J.A. Sharpe
Toronto, Ontario

LA SURVEILLANCE NEUROLOGIQUE AU COURS DE LA PREMIÈRE ANNÉE DE LA VIE. Par Claudine Amiel-Tison et Albert Grenier. Publié par Masson Éditeur. Paris, France. (Disponible au Canada chez Somabec Ltée, Case postale 295, St-Hyacinthe, Québec J3S 5T5.) 175 pages. 108 figures. Prix 16 $ can.

En parcourant ce petit livre, on pourrait croire que c'est une réédition de l'ouvrage classique de Mme Amiel-Tison sur les techniques d'évaluation neurologique du nouveau-né, mais en lisant de façon plus attentive il renferme tant de matière nouvelle qu'il mérite d'être considéré comme un traité original. Mme Claudine Amiel-Tison est une des autorités les plus reconnues au monde en ce qui a trait à la neurologie néonatale, et elle est une «vedette» admirée universellement dans le domaine du développement dans l'enfance. Son nom et celui de son coauteur Albert Grenier, sont déjà bien reconnus en Amérique du Nord autant qu'en France.

Le livre actuel traite de l'examen neurologique et des changements qui accompagnent la maturation au cours de la première année. Le texte est assez bien documenté en ce qui a trait aux observations scientifiques et il est construit de façon si concise que c'est un plaisir de le lire. La monographie est illustrée à profusion avec des photographies et des dessins montrant les postures, les réflexes, les manoeuvres et les techniques de l'examen décrits dans le texte. Des tableaux sont également utilisés. L'organisation du livre est systématique, logique et facile à suivre. Les travaux d'autres auteurs sont cités, mais la plupart du texte est consacré aux études et aux expériences des auteurs eux-même. Je n'ai trouvé que très peu d'assertions avec lesquelles je n'étais pas tout à fait d'accord.

Les auteurs groupent leurs données sous des thèmes généraux en facilitant l'accès évoquant de temps en temps des interprétations imaginatives. Pour ce qui est du gradient caudo-céphalique dans le développement du tonus musculaire et des fonctions motrices chez l'enfant prématuré, par example, les auteurs insistent sur l'observation que le gradient s'inverse ensuite pendant la première année, devenant une progression céphalocaudale du contrôle moteur, celui-ci progressant plus rapidement au niveau des membres supérieurs que des membres inférieurs. Les «états évoqués de communication» et la «motricité libérée» sont des signes de valeur pour faire précocement le prognostic de normalité chez le nouveau-né souffrant d'asphyxie néonatale.

L'appendice à la fin du texte consiste en une série de listes de contrôle de l'examen systématique. Les pédiatres, et plus particulièrement les néonatologues, sont complètement séduits par de telles listes de contrôle où tout semble noir et blanc sans ombres de gris gênantes, mais la majorité de neurologues considéreraient ces listes plus appropriées aux infirmières, de telle sorte que l'appendice sera un point positif pour les pédiatres et un point négatif ou indifférent pour les neurologues. Néanmoins les auteurs évitent avec sagesse d'établir une cote numérique à partir des résultats de l'examen neurologique.

En conclusion, à mon avis cette petite monographie devrait faire partie de la bibliothèque privée des neurologues pédiatriques et je la recommande sans hésitation. Une version anglaise sera publiée cette année ou l'an prochain par l'«Oxford University Press» à New York.

Harvey B. Sarnat
Calgary, Alberta

THE CEREBRAL VENOUS SYSTEM AND ITS DISORDERS. Edited by Kapp and Schmidek. Published by Grune & Stratton, Inc. 637 pages. $120.25 Cdn.

This is a multi-author volume which attempts to collect and organize current knowledge about the venous system of the brain and its disorders. Slightly less than half the volume is devoted to basic science and the remainder to clinical, surgical and pathological aspects of disease.

The book is produced on high quality paper and is particularly noteworthy for the high standards maintained for all illustrations, including drawings, radiographic reproductions and photographs of clinical material. The chapters on anatomy and physiology are particularly well written and clearly reflect, with up-to-date references, our current knowledge in this area.

The chapters related to clinical topics are of more variable quality and should probably have been more tightly edited. Some of the difficulty arises here because we are dealing with a relatively rare group of disorders and it is impossible for any individual to have more than a limited experience with any one. The frequency of Sturge-Weber syndrome almost certainly does not warrant it a separate description by three different authors.

The chapter on Cerebral Venous Thrombosis is comprehensive and well referenced. As it was written before widespread availability of digital intravenous angiography, the role of this technique in the investigation of cerebral venous disorders is not mentioned. It has now become obvious that this is the technique of choice for investigating such patients and it allows one to obtain higher quality pictures of the venous side of the circulation than conventional angiography, in a less invasive fashion. The chapter on cerebral venous malformations provides a wonderfully illustrated description of the radiological anatomy in a group of patients studied by the authors. There is an overemphasis on the association between carotid artery disease and central retinal vein occlusion, one that is not borne out in recent series.

Overall I feel this book serves a useful purpose by collecting current information about the cerebral venous system and its disorders in one volume. I would recommend this book for libraries, or Neurologists with a special interest in cerebrovascular disease.

Joseph G. D'Alton
Ottawa, Ontario

ALZHEIMER'S DISEASE: THE STANDARD REFERENCE. Edited by Barry Reisberg. Published by Collier MacMillan Canada Inc., 1983. 475 pages. Illustrated. $69.95 Cdn.

The preface states that the intent of this volume is to be a "comprehensive and up-to-date text to serve medical students, practising physicians, and other health professionals". This is a difficult task for a text in a field that is so rapidly expanding, yet this volume accomplishes most of what it sets out to do.

Each of the book's thirteen sections consists of concise chapters written by experts in the field. The references are comprehensive and up-to-date. The introductory chapter does an admirable job of establishing definitions. This is important in view of the rapid changes and potential confusion to which this field is subject. The concept of Primary Degenerative Dementia which it highlights is useful since at our present level of knowledge several degenerative dementias are clinically indistinguishable from Alzheimer's Disease. The sections on the Neuropathology and Neurochemistry of Alzheimer's Disease are two of the longest sections in the book reflecting the active ongoing research in these two disciplines. Since the book was