Education in order to encourage undergraduate medical students to read this book and so gain a better understanding of how central, peripheral and systemic causes of dizziness can be assessed, diagnosed and treated.

In summary I found this book enjoyable to read and would recommend it for anyone with an interest in learning more about balance disorders.

Toni R. Winder,
Lethbridge, Alberta

A GUIDE TO ADULT NEUROPSYCHOLOGICAL DIAGNOSIS. FIRST EDITION. 1996. By Anthony Y. Stringer. 528 pages. $C91.00

The author who is an Associate Professor of Rehabilitation at Emory University School of Medicine set a goal to operationally define in an atheoretical manner the complexity of behavioural disturbances seen after brain diseases and disorders. The introductory chapter offers a rationale for a diagnostic approach, and guidelines to the organization of the remaining 18 chapters. Each chapter begins with descriptive classifications for related neuropsychological disorders including alternative nomenclatures. Thereafter follows lists of clinical indicators, associated features, factors to rule out, and lesion locations. Possible etiologies are discussed, along side the disabling consequences from a patient's perspective, some assessment instruments, and case illustrations. Rapid search strategies are greatly aided by three indices (anatomical, etiological, and behavioural), in addition to the table of contents.

Cognitive, emotional, and behavioural manifestations of neurological diseases in the brain are grouped into disorders of alertness, disorders of concentration, stimulus neglect, stimulus imperception, spatial imperception, disorders of visual-motor integration, disorders of stimulus localization, disorders of movement, disorders of oral language, disorders of written language, disorders of emotional communication, calculation disorders, memory disorders, illusions and hallucinations, neuropsychological disorders of emotion, ideation, and behaviour and intellectual decline.

Readers with little background in clinical neuropsychology will find this cookbook approach a quick and easy way to gain familiarity with this inexhaustible and sometimes bewildering field of practice. Though not intended for the novice, the latter have the most to gain from such a well organized presentation so concisely described. Advantageous is the tables and conversions of neuropsychological momenclature into DSM-III-R, DSM-IV and ICD-9-CM codings. Others who have spent years in graduate and post graduate training might find the material too superficial and at the same time idiosyncratically precise.

One highlight of the book was the author's insights relating diagnosis with its disabling consequences; links that often go overlooked but greatly impact on leisure, social and occupational roles. These issues bear most directly upon service delivery within forensic and insurance contexts. Another very positive feature of the diagnostic exercise was the systematic, point by point guidelines that might rule out non-organic diagnoses before concluding that the deficits represent brain damage. If this section alone were heeded by diagnosticians, credibility of the field would be enhanced 100 fold.

This compendium of over 140 neuropsychological disorders was never intended to be read from cover to cover, the way a conscientious reviewer might. Indeed, the material contained therein might better be adapted into software programs accessible via computers.

Jeannette McGlone,
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IMAGING OF THE PEDIATRIC HEAD, NECK, AND SPINE. FIRST EDITION. 1996. By or Edited by Mauricio Castillo and Suresh K. Mukherji. Published by Lippincott-Raven, Philadelphia. 768 pages. $C223.00

This book, Imaging of the Pediatric, Head, and Spine by Castillo and Mukherji is an addition to a number of noteworthy textbooks on Pediatric Neuroradiology by Barkovich, Wolpert and Barnes, and those sections of books of neuroradiology in general by Osborn and pediatric radiology in general by Kirks that deal with pediatric neuroradiology, to name a few. This book is different in that it adds a considerable degree of clinical detail to the many conditions described and a significant section on head and neck imaging in children, a difficult and less well covered subject. It also covers the full span of pediatric neuroradiology of the head and spine and their contents as well, but in a different format. The authors organize the individual disease entities in a case report format rather than in a more comprehensive cohesive chapter style. This has both its attractions and its detractions. Furthermore, and deliberately so, the authors have elected to provide few references.

I enjoyed reading the book from cover to cover. However it does have certain distractions and deficiencies which need to be mentioned. There is an enormous waste of space. Blank space abounds. By conservative estimate, fully one-quarter of the book cumulatively consists of wasted pages. For example, one page contains only a single reference on it, and is otherwise blank. This space could have been filled with useful illustrations, not adding to the price substantially as no further pages would be needed, or similarly careful editing and publishing could have cut down the volume size and therefore the price. The vast majority of illustrations are appropriate but some of them quaintly chosen for their "show-and-tell" benefit rather than their instructive usefulness. A marvelous opportunity has been missed to provide a galaxy of images which would have been extraordinarily beneficial to the reader. This deficiency may be due to lack of sufficient material or by choice. It leaves one with a paradoxical sense of frustration within the enjoyment of reading. Furthermore the choice of references sometimes appear rather arbitrary and often just too minimal for the interested reader. Four or five are most useful but a single inappropriate choice seems strange. There are three references on the rare syndrome of Kallmann and only two on primitive neuroectodermal tumours, one of which is most inappropriate!

The chapter on intracranial neoplasms is good, but each such broad topic lacks at least an introductory short chapter on how to differentiate between lesions such as within neoplasms or between them and other lesions, and their salient unique or common features. Even a table or two would be appropriate, a strategy used by authors in more rare conditions however. Parenthetically, when used these tables are most useful. A major

deficiency is the scant treatment of hydrocephalus encompassing a mere 11 pages, 5 of which deal with complications of ventricular shunts. One wonders why. The chapter of trauma is brief to the extreme, but notwithstanding, valuable. Notwithstanding these constructive criticisms – which do diminish the usefulness of this textbook somewhat – the overall impression and value is good. Each bite size piece of information is useful.

In summary, the book is most readable and useful as a reference book if one knows what the diagnosis is, but often lacking in direction to the reader of how to get there in the beginning. It is certainly comprehensive and in that regard it has merit. Regardless of the above critical comments, which hopefully will be used to improve the second edition, this book is recommended for any unit performing pediatric neuroradiology and for residents and fellows in the neurosciences; it is good for a random overview and for each entity, concisely described, if not necessarily completely illustrated. It is refreshing to see a blend of plain films, computed tomography and magnetic resonance imaging. It does provide a balance between the imaging techniques often lacking in many books. For all these reasons, it is a worthwhile investment.

D. Harwood-Hash,
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(deceased)

BRAIN PLASTICITY AND BEHAVIOUR. 1995. By Bryan Kolb. Published by Lawrence Erlbaum Assoc. Publishers. 194 pages. $C59.00

If the 1900s was designated the Decade of the Brain, the next ten years should be the decade of Brain Recovery. Developments in the neurobiology of regeneration and neural plasticity and in cognitive neuroscience are opening exciting new possibilites for neurological and cognitive rehabilitation. This monograph introduces the reader to a broad range of empirical findings on brain recovery at the behavioural level in humans and animals. After a basic discussion in chapter 1 on synaptic plasticity as it is played out in the cerebral cortex, the author reviews features of cortical organization and the correlates of cortical plasticity, including axonal growth, dendritic growth and glial changes in chapter 2. A major constraint on neural recovery is the requirement for appropriate afferent and efferent connectivity. Intrinsic cortical circuits, which are responsible for the majority of cortical connections, are the most likely site for cortical plasticity. Citing his own experimental researches, the author shows that the effects of synaptic plasticity can be seen in general training as well as specific learning paradigms and in the process of normal aging. Neural plasticity is depicted as a continuous, dynamic process going on throughout the life-span. The continual change occurring in neurons provides the substrate for rapid adaptation to the environment. Experience changes not only synaptic organization but also dendritic morphology in a manner which in turn enables more rapid plastic changes to occur.

Chapters 3 and 4 review the evidence for recovery in adult humans with reference to stroke, closed and penetrating head injury and surgical excision. Although partial recovery occurs after many forms of injury, there is marked individual variability in the extent of recovery of different functions; for example, language appears to recover more readily than other cognitive abilities. Mechanisms promoting recovery may no longer be able to compensate as the subject ages, and the earlier symptoms of the brain injury may be unmasked. The study of recovery from brain damage in adult laboratory animals, including recovery of motor and sensory function, spatial navigation and the effects of serial damage, has revealed several factors which contribute to differential patterns of recovery. Recovery is task-dependent and may be evident in one behavioural measure and not another. The time for recovery varies for different types of behaviour and lesion size plays an important role as does young age and the aging process. The "Kennard Principle", that damage at a younger age gives more potential for recovery, ignores critical periods and stages of development. In fact, brain injuries have different sequaele depending on the stage of development at which they occur. Sometimes damage early in life may be worse than later on, since some aspects of congitive development are critically dependent on the integrity of certain structures at particular times. From these human and animal studies the author draws several conclusions. Injury during the mitotic or neural migration phase of brain development (birth to six days in rats; third trimester to part way through first year in humans) yields a very poor behavioural outcome. Injury during the period of maximal dendritic differentiation and synaptic formation has the greatest potential for functional recovery. In rats this begins at seven to ten days and continues into adolescence. In humans this may start in the second year of life but the end point depends on the region injured. There is often a price to pay for recovery and aging may reverse some of the gain. The extent of damage clearly influences recovery and bilateral damage is more devastating than unilateral injury. Generally, cognitive behaviours show better recovery than species-typical behaviours.

The final chapters of the book highlight evidence for plasticity after cortical damage to specific regions such as the hippocampus and different neocortical areas. Remodelling of cortical circuitry is postulated to be the correlate of functional recovery. The essential hypothesis is that dendritic atrophy correlates with non-recovery and dendritic growth correlates with recovery. Dendritic growth is influenced by neocortical activity and this has important implications for rehabilitation. Surprisingly, in this context, the author makes no reference to the emerging literature on the activity-linked use of amphetamines in rehabilitation of motor deficits after stroke; specifically the recovery-promoting effects of amphetamine may only be seen when the drug is given in temporal relationship to the physiotherapy. These observations have yet to be fully exploited in standard rehabilitation programs.There is also no mention of Robertson's work on the use of motor activation to speed recovery from hemispatial neglect. In the final section, experimental evidence from animal lesion models is used to illuminate and interpret recovery patterns seen in acquired brain injury in humans. The important modulating effects of hormones and neurotrophic factors is also addressed.

In summary, this is a useful synthesis of current concepts of brain recovery for neuroscientists and clinicians alike from an