mainly the value of repetition by reading it again here, plus the convenience of having it in one binding.

The style o the contributions varies almost as widely as the content, ranging from mathematical excursions to the informal chat of Julesz in the last chapter, which provides an excellent overview of his work as well as an indication of some still unsolved problems, a scientific version of a living will, as it were. There is also the neurophilosophical musing of Stanley Klein in "Will robots see?", perhaps the most interesting chapter of all. Quantum mechanics, the mind-body question, the Turing test, the homunculus, humanoids and zimbos all make an appearance in this exploration of whether the visual experience of robots will ever be the same as that of humans.

The book suffers from some sloppy technical editing, which proved annoying even if it may be nitpicking. For example, the otherwise good introduction by Harris and Jenkin is marred by reference to a diagram in Regan's chapter which must have been omitted from the final draft, and figure 2 of Wilson's chapter strained by eyes in Escher-like fashion until I realized that it had been printed upside-down.

In the end, the book will appeal most to those combining a keen research interest in vision and a rock-solid mathematical background, not a numerous group in the neurologic community, I imagine. Its true home lies near its origins, namely the psychology departments of the world, where I am sure it will be a useful reference of essays. Those interested in the clinical side of vision will find little to help here, and the casual reader is forewarned: this work will not serve as an introduction to its field. I left the book somewhat frustrated, determined to upgrade my mathematics, but comforted by the fact that at least now I knew the difference between humanoids, zombies and zimbos.

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FOUNDATIONS OF MODERN NEUROLOGY: A CENTURY OF PROGRESS. 1993. By Robert B. Aird. Published by Raven Press, New York. 315 pages. $C111.00

Recent generations have become accustomed to an impersonal form of medical writing, with observations reduced to figures, relevance reduced to *P* values and personal experience and feeling expunged. However, this book continues the personal approach of Aird's 1988 article on 20th century neurology.[1]

A predecessor to this book was "The Founders of Neurology", compiled by Haymaker in 1953 which documented the careers of neurologists and neuroscientists to the midpoint in this century.[2] That compilation, however, described careers in a rather matter-of-fact manner. Aird approaches this differently. He obviously loved his relationship with his contemporaries and was excited by the flowering of neurology during his career. He knew most of those major figures of 20th century neurology. They vary from Harvey Cushing, who died in 1939, to Ottawa born James Gruseloa, who was born in 1954. In approaching the array of 20th century clinicians and neuroscientists, he places them in the categories for which they were best known – epilepsy, neurological diagnosis, neuroanatomy and neuropahtology, neurophysiology, neurochemistry and pharmacology and the various basic and clinical fields. He includes groups in the categories of art of medicine and neurological education, and concludes with a group of outstanding teachers, statesmen, and "legendary" neurologists.

I was impressed by his inclusion of the contributors in associated fields such as neurochemistry, neurophysiology, neuropathology and neuroradiology. This was the age of towering personalities, impeccable neurological examination, and theatrical flourish in teaching. Clinicians struggled to relate physiology and pathology and the new sciences to the clinical setting.

Such an encyclopedic task requires some hard decisions. I expect many will criticize this work, and might recommend changes that would produce a more scholarly unread reference book rather than this personal recollection. One great value of a work like this, written by someone who walked and worked along with those struggling to advance neurology, is the capturing of those who also contributed to the field in many ways but never gained recognition. It is important that those who advanced our knowledge be acknowledged. Perhaps a personal reminiscence of a peripatetic fellow traveller is one of the few ways (other than impersonal reference lists) that these individuals will achieve a lasting memorial.

This is an entertaining book, particularly for those interested in knowing something of the personalities, quirks, hobbies and styles of these well known clinicians and scientists. The neurologists trained in the 1950 - 1980 era would enjoy this book because they would have seen and heard many of these leaders when visiting other centres and attending national and international meetings. Those whom they did not know they would have heard of from their teachers. I am not sure how the newest generation would view all of this, but neurologists are noted for their interest in history, particularly the history of their discipline, so I expect that there would be wide appeal even among recent trainees.

Aird occasionally digresses. For instance, in the brief outline of Penfield's life he describes how Penfield rose to ask him a question after one of his papers in 1947. He then allows almost equal space to the description of his own work to show that Penfield's question was perceptive. Because this is a personal account it is understandable that his own work and activities appear repeatedly in the account of others, but this could have been dampened a little. He makes only a small attempt to balance the prominence or contributions of the person with the length of their section, but does use certain individuals to illustrate the development of neurology in an area.

Aird notes the variable pattern of honours that came to the major founders of modern neurology, some extensively honoured (Penfield, Eccles, Lord Adrian, Lord Brain) and some quietly applying themselves to their work and earning fewer honours but great respect (Greenfield). His admiration for wonderful teachers like Macdonald Critchley is evident. A new generation of neurologists might think that these major contributors to the development of neurology in the first part of the 20th century have left us, but I visited the 94 year old Macdonald Critchley in Nether Stowy, Somerset in 1993, and he was working on a life of Hughlings Jackson.

The personal anecdotes add color to the account of their careers. For instance, Aird remembers assisting Harvey Cushing at the Peter Bent Brigham Hospital, and being taught how to scrub up by Norman Dott of Edinburgh, a visiting surgical fellow who used the technique of scrubbing in the dark with lamp black over the hands, to ensure you know the technique. We read of Cushing's high strung temperament when things did not go well in the OR, and of Dandy's profanities in similar circumstances.

It was interesting to learn that Frank Ford, perhaps the major contributor to pediatric neurology in those formative years, never had a bed service, and had minimal training in neurology and no training in pediatrics. (Although it is stated he never had residency training, he actually was a resident in psychiatry under Adolf Meyer, and served as a resident in neurology under Foster Kennedy, but he did not complete full postgraduate training.) He was an

eccentric "lone wolf" but worked alongside Frank Walsh in neuro-ophthalmology and Walter Dandy in neurosurgery. He did not like to travel, never attended medial meetings, chained smoked, dressed poorly, limped, spoke quietly and only took students if he liked them. His reputation however, was based on his remarkable diagnostic skill, keen observation and his influential book, "Diseases of the Nervous System in Infancy, Childhood and Adolescence" which was the leading text of pediatric neurology for generations.

Hans Zinsser was estimated by students to walk one to three miles during his energetic lectures. Although I have read Zinsser's autobiography, I never would have expected to see him in this volume, and it probably relates more to Aird having experienced his lectures at Harvard than to his studies on herpes encephalitis and syphilis. Because it is a very personal odyssey over the last half century, Dr. Aird can be forgiven a predominance of individuals from the University of California, San Francisco, and a tendency to shift the centre of American neurology from the eastern seaboard to the west coast.

I think all readers will be somewhat puzzled by a few that are included, and many who are excluded. Given those who were included why did we not hear of Joe Foley, J.C. Richardson, Roger Gilliatt, Frank Rose, W. Ian McDonald, Sir Hugh Cairns, Denis Williams, Wylie McKissock, P.K. Thomas, John Marshall, Bud Rowland, Bob Joynt, Howard Barrows, Jack Wisnant, Donald Baxter, Labe Scheinberg, Preston Robb, William Oldendorf, Bob Fishmann, Morris Bender, Milton Shy to mention only a few. It would be expected that anyone compiling a list of major contributors to neurology during the "flowering period" would create a personal and subjective list, but the high percentage of questionable inclusions, and the large number of surprising omissions makes this a very unbalanced book, to the point where it would be more appropriately titled "outstanding neurologists I have known" rather than the more ambitious "foundations of modern neurology".

It is interesting, and sometimes fun to read as a personal recollection of neurologists he knew much in the vein of Critchley's 1990 correctly titled "The Ventricle of Memory: Personal Recollection of Some Neurologists"[3] but it fails in living up to its title promise of outlining the foundations of neurology in this century.

References

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MRI OF THE SPINE. 1994. Edited by T.E. St. Amour, S.C. Hodges, R.W. Laakman and D.E. Tamas. Published by Raven Press. 865 pages. $C241.00

This text is a comprehensive review of MR imaging of diseases of the spine. The book contains 865 pages and the format consists of eight sections based on the disease group. Brief introductory chapters on MRI protocols, terminology and MRI appearances of pathology are included.

Each section has multiple chapters, each of which is intended as a self-contained discussion of a disease/disease group. The chapters are organized with an introductory unknown case to stimulate interest followed by a detailed review of the clinical, pathologic and radiologic features of the disease and a discussion addressing clinical and therapeutic issues and differential diagnosis. The images are of excellent quality and well labelled.

The text succeeds in the two goals set in the preface: (1) it provides accurate and comprehensive examples of the spectrum of MRI findings for a given disease, (2) it addresses clinical issues germane to MR interpretation in daily practice.

The greatest value of this text is found in the discussions where the author has described the role and limitations of MRI in diagnosis and incorporated clinical features to narrow the differential diagnosis. The text is practical in emphasis though those who have experienced numerous problematic cases in practice will appreciate that the rare and unusual are addressed with generous references.

The text would be of value as a reference for radiologists, nonradiologists and subspecialty trainees involved with MRI of the spine.

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PHYLOGENY AND DEVELOPMENT OF CATECHOLAMINE SYSTEMS IN THE CNS OF VERTEBRATES. 1994. Edited by W.J.A.J. Smeets and A. Reiner. Published by Cambridge University Press. 488 pages. $C150.00

This book is concerned primarily with the anatomy and function of brain catecholamine systems in each of the seven extant classes of vertebrates. Separate chapters review data on the development of the systems in those species where such information is available and on such topics as sex-specific characteristics of the catecholamine systems. A final chapter attempts to summarize the current concepts on evolution and function. The book grew out of a two day session on phylogenetic and developmental aspects of catecholamine systems which occurred during the 7th International Catecholamine Symposium, held in Amsterdam in June 1992. A useful index is provided.

In each of the chapters on anatomy and function, detailed maps of cell bodies and fibers immunohitochemically positive for tyrosine hydroxylase (TH) and dopamine (DA) are usually presented. In some instances data on staining for noradrenaline, dopaminebeta-hydroxylase, and phenylethanolamine-N-methyltransferease are also given, but these are generally less detailed. Five chapters deal with the distributions in mammalian systems, with separate ones being devoted to catecholamine systems in the midbrain plus hindbrain and in the diencephalon, while others discuss catecholamine innervation of the basal ganglia or cortex. The fifth is concerned with the existence and possible importance of telencephalic dopamine neurons in monkeys, humans and rats. The maps for noradrenergic and adrenergic systems are generally, as one would expect, more detailed in the chapters on mammals than in those on sub-mammalian species.

Most chapters also describe the relationship of the catecholamines to various functional systems, such as the olfactory, visual and motor, as well as possible interactions and colocalizations of the catecholamines with other neurotransmitter systems. In most cases, the possible interactions are described based only upon similar distributions but, in the case of the mammalian diencephalon, excellent summary tables are provided, with many of the reported interactions being supported by electron microscopy.

The chapters on ontogenesis are generally much less detailed than those on adult anatomy, with the rat and chick being clearly the most well studied species. Development of catecholamine systems in the rat is discussed in general terms in one chapter, with a second being devoted specifically to development of the hypothalamic systems and their influence on hypothalamic neuropeptide expression,