Book Reviews

PRINCIPLES OF NEURAL DEVELOPMENT. 1985. By Dale Purves and Jeff W. Lichtman. Published by Sinauer Associates Inc. 433 pages.

At first glance, one might ask: What is the relevance of a book such as this for a journal whose readership is primarily clinical? Of course, one could always resort to the legitimate argument that clinical neurologists and neurosurgeons should keep abreast with fundamental knowledge in developmental neurobiology and the other basic neurosciences. But there are even more compelling reasons for recommending this book to the readers of the Canadian Journal of Neurological Sciences. "Principles of Neural Development" is entertaining as well as informative. It can be studied as a text-book or perused for the "boxed" vignettes that include brief biographies, topics of controversy — both old and new, and descriptions of some of the classic experiments of developmental neurobiology.

As a text-book for advanced biology students or as a thorough treatise to familiarize neurologists and neurosurgeons with the field, Purves and Lichtman have created a volume that is eminently readable, logically organized and appropriately illustrated. After an introductory review of embryogenesis, the reader is taken through the field of developmental neurobiology in a sequence of chapters that cover: neuronal differentiation, migration and axonal growth; developmental neuronal death; trophic interactions between neurons and targets; the formation, maintenance, and rearrangement of neuronal circuitry; the molecular basis of neural recognition; and, the development of behaviour. The theme of each chapter is outlined in a brief introduction and the conclusions are concisely summarized. Most chapters are profusely illustrated with black-and-white photographs and illustrations that amplify the text, often by illustrating the experimental basis for the more general principles.

In addition to its utility as a text-book, this volume can also be enjoyed by the more casual reader. Each chapter contains one or more relevant short essays (Boxes) that expand specific points ranging from metamorphosis to monoclonal antibodies or highlight controversies such as techniques for counting neurons and the putative trophic substance "sciatin". Then there are the biographies. It is extremely interesting to learn about the great names of developmental neurobiology from Harrison (who was overlooked by the Nobel selection committee because the usefulness of the technique he had developed — tissue culture — was considered to be too limited in value) to the several scientists who so enriched American neurobiology after escaping or surviving the horrors of the Third Reich.

Everyone interested in the nervous system can be grateful to the authors and publishers of "Principles of Neural Development" for presenting such a succinct, reasonably priced and up-to-date volume such as this.

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INTRACRANIAL ARTERIOVENOUS MALFORMATIONS. Edited by Charles B. Wilson and Bennett M. Stein. Published by Williams & Wilkins. 324 pages.

Twenty-one contributors have produced a succinct, up-to-date volume on all aspects of arteriovenous malformations. The neurosurgeon who operates on such lesions will be well advised to give this book careful study. This volume is profusely illustrated with high quality reproductions of CT scans and substracted angiograms.

The review of venous and cavernous malformations was particularly interesting to this reviewer as a guide to the management of these uncommon lesions. Steiner's report on the treatment of arteriovenous malformations by radiosurgery will be of great interest to all clinical neuroscientists. This modality is applicable to many lesions up to 30 mm in diameter. This apparently very safe treatment produced an 84.1% total obliteration of 63 cases after a latency of two years.

Wilson and Stein have not let their bias as master surgical technicians with considerable experience in the operative management of arteriovenous malformations influence their balanced treatment of the subject. Data on the natural history, such as is available, is clearly and objectively presented. All those who care for patients afflicted by these lesions will benefit from owning this excellent text.

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AUTONOMIC FAILURE — A TEXT BOOK OF CLINICAL DISORDERS OF THE AUTONOMIC NERVOUS SYSTEM. Edited by Sir Roger Bannister. Published by Oxford University Press. $128.25

This multi-authored book is a gold mine of information on the autonomic nervous system and its disorders. There are valuable overview chapters on the organization and control of autonomic function, on the testing of autonomic reflexes and on the classification of disorders of the autonomic nervous system. An early chapter deals with the relatively new techniques of recording sympathetic neurone activity, in peripheral nerves, due to autonomic reflexes, using microelectrodes in conscious patients. The correlation of recorded action potentials with vasomotor and sudomotor activity, skin resistance (galvanic skin reflex), blood pressure changes and many other autonomic functional activities is made. This technique will soon find many clinical applications. Techniques of cardiovascular monitoring in autonomic failure are well discussed as are the changes in circulatory performance in progressive autonomic failure.

The discussion of adrenergic receptors in autonomic failure is up to date and the pharmacological probing and investigating of postsynaptic adrenoreceptor changes and denervation supersensitivity are of particular value.

Studies of peripheral sympathetic neurone activity and function including basal catechol amine levels, blood pressure responses to noradrenalin, tyramine and angiotensin infusions, and plasma glucose and noradrenalin responses to insulin tolerance tests, all provide valuable baseline data with which we can compare results obtained on our patients, as well as indicating their use in differentiating between various types of autonomic failure. Similarly several induced hormone changes which can show up autonomic dysfunction are described.

The investigation of diabetic autonomic failure with relatively simple equipment is considered carefully. In one chapter

where the hypertensive response to isometric hand grip exercise is discussed, it would have been nice to see a reference to Lind and his colleagues who first demonstrated the response.

It was good to see a chapter about autonomic failure in the elderly. The extensive studies of the incidence of orthostatic hypotension, thermoregulatory impairment and the relationship of Parkinsons and cerebrovascular diseases to autonomic dysfunction in older people are very well discussed.

Almost every form of autonomic dysfunction from multiple system atrophy, familial dysautonomia, amyloid disruption of autonomic fibres, to problems of autonomic outflow to the eyes and many others are well discussed, with descriptions of clinical presentations, pathology, neurochemistry and investigative procedures. Associated problems such as ion and fluid homeostasis alterations receive attention.

The book ends with an exciting chapter on experimental studies of immune autonomic neuropathies. Throughout the book, present knowledge is supplemented with exciting experimental work in progress, and quantitative measuring techniques are presented to aid our studies of patients with autonomic nervous system disease, and attention is given to the difficult problems of management of these patients. The reference lists are extensive and the book is well indexed. It is a "state of the art" book, which, by its many stimulating discussions, will promote research work which will produce a need for a new edition in a few years. Though fairly expensive, this book is mandatory for the bookshelves of any physician, neurosurgeon or physiologist with a major interest in the autonomic nervous system.

K.E. Cooper
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TOPICS IN NEONATAL NEUROLOGY. 1984. Published by Grune and Stratton. Edited by H.B. Sarnat. 301 pages.

Neonatal neurology, as a sub-discipline of neurology, has developed extremely rapidly during the past decade. A veritable explosion of new knowledge has occurred, both from the basic science and clinical points of view, largely prompted by technological advances which have enhanced the survival of critically-ill neonates. Several textbooks on neonatal neurology, some attempting to be encyclopedic, have appeared in the last few years. Unfortunately the exceptionally rapid evolution of knowledge about the developing brain and its many disorders has led to early obsolescence of some of the information in these books.

The recently published book, "Topics in Neonatal Neurology", has not been designed as another exhaustive review, but as a selective reassessment of several major problems in neonatal neurology with a view to updating knowledge in these areas and, hopefully, provoking further discussion and inquiry. Given these restricted goals, the authors of "Topics in Neonatal Neurology" have succeeded quite well in their endeavours.

Among the authors of this volume are a number of researchers who have made important contributions to the science of the neonatal brain and who remain in the forefront of their respective fields. Topics covered in the book include perinatal cerebral hypoxia-ischemia, periventricular and intraventricular hemorrhage, bilirubin encephalopathy, hyperammonemic encephalopathy, neonatal meningitis, apnea, and seizures. In addition there is a timely review of neonatal ultrasound, EEG and evoked potentials. The volume is prefaced by an interesting correlation of the anatomophysiologic changes in the developing brain and evolving behavioural phenomena in the premature infant.

On the whole the chapters are well-written and concise. There is a clear attempt to make the text easily comprehensible to readers from related fields. Relevant animal experimental data is presented carefully without losing the reader in a welter of conflicting information; the emphasis in each chapter remains that of the fundamental clinical problem for the practising physician. Reference material is up-to-date and appropriate without being exhaustive. There are unfortunately a disconcerting number of typographical errors in the text, sometimes of fairly major importance (eg. pictures incorrectly labelled or in reverse order to that described in the text). With this exception, "Topics in Neonatal Neurology" is a well-conceived book which will be of use, in particular, to pediatric neurologists, neonatologists and pediatricians involved in the care of sick newborns.

P. Humphreys
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ENTRAPMENT NEUROPATHIES. 1983. By D.M. Dawson, M. Hallett, L.H. Millender. Published by Little, Brown & Co.

Entrapment neuropathies are very common and their elucidation is important to a wide spectrum of general practitioners and specialists. In the last two decades, much has been learned of the pathophysiology of these entities. Electrophysiological techniques have now evolved to the point that localization and the probable underlying character of an entrapment neuropathy can be determined reliably.

This book is a collaborative effort of two neurologists and an orthopedic surgeon. It provides discussion of clinical presentations, differential diagnoses, electrophysiological diagnostic techniques and management placing particular emphasis on the more common neuropathies. The bibliography is both current and comprehensive and the illustrations helpful (although more intraoperative photographs are included than seems necessary to make the essential points).

This new volume is recommended as a concise yet adequately comprehensive guide to the recognition and management of entrapment neuropathies. It is well worth its price.

W.F. Brown, P. Barton
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PATHOLOGY OF SKELETAL MUSCLE. By Sterling Carpenter and George Karpati. Published by Churchill Livingstone. 754 pages. $132.50 Cdn.

In the first sentence of the preface, the authors stated that "the central purpose of this book is to provide an accurate description of the pathology of skeletal muscle". I believe that they have succeeded admirably in doing this.

Approximately half of the book is devoted to a description of:

a) the general pathologic reactions that affect muscle fibers,
b) the normal organelles and constituents of muscle fibers and how they react pathologically,
c) abnormal structures that can be found in muscle fibers, and