The editors have put much thought and effort into preparing a review that would permit the greatest insight into the significance of interactions of these three systems.

The first seven chapters are developed with an underlying theme that soluble mediators of response subserve many of the functions within and between the three systems of interest, and that production of and receptors for these factors are shared by cellular elements of these systems. These soluble mediators can be subclassified conveniently by their sites of action and tissue concentration as ionic (micromol/mg), second messenger (nanomol/mg), and genomic (picomol/mg). The authors have developed these chapters in a logical fashion, culminating in chapters 6 and 7, "Influences of Hormones and Neuroactive Substances on Immune Function", and "Plasticity of Brain after Injury", both of which are particularly informative.

The final chapter, in some respects, detracts from the overall quality of the monograph. The authors have concentrated on conditions where a "neuro-endocrine-immune connection" is tenuous at best. The reader uninitiated to this area would have been better served by a clear and concise review of those clinical entities where the connection is well established. For example, instead of a discussion on the postviral fatigue syndrome, myasthenia gravis and the neural influence on joint inflammation might have been covered. The neuroendocrine relationships that subserve the migraine syndrome and the premenstrual syndrome deserve at least as much discussion as the neuroanatomical and electroencephalographic findings in dyslexia.

For attempting to foster the interdisciplinary communication that remains an important factor in advances in understanding of basic biological processes, the editors are to be commended. While attempting to reach an uninitiated audience, however, they have undershot their mark and have compounded this problem by relying more on clinical obscurities than on established conditions that would put the "neuro-immune-endocrine connection" in its proper perspective.

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MYELODYSPLASIAS AND EXTROPHIES: SIGNIFICANCE, PREVENTION, AND TREATMENT. Edited by David B. Shurtleff. Published by Grune & Stratton, Incorporated, 1986. 591 pages. $86.50Cdn.

This interesting volume describes the experience of the Seattle myelomeningocele team in dealing with children with complex congenital abnormalities, including the extrophies and myelodysplasia. The clinical experience has been drawn from a computerized data file that has evolved over a period of 28 years. The material has been compiled by 8 authors and 14 researchers, with criticism and suggestions provided by 9 reviewers. The authors include physicians, surgeons, psychologists, educators, nurses and several therapists.

The first section titled "History and Philosophy" includes a good discussion of the decision making process for the treatment or nontreatment of congenitally malformed individuals. Readers outside of the United States will be interested to know of American laws establishing the legal right for treatment for malformed infants and children.

Section II "Initial Medical Treatment" includes discussion of embryology and embryopathology, etiology, and some examples of the Seattle experience with management of cases diagnosed in utero. In considering management options, the authors completely ignore the maternal risk of cesarean section. The risk of infection of a myelomeningocele during vaginal delivery, and in the immediate hours following birth, seemed to be exaggerated from my experience.

The third section on "Management of the Neurogenic Bowel and Bladder" includes a great deal of information which will be of help to family physicians, pediatricians, nurses, and parents of children with myelodysplasia. The emphasis of the Seattle group in teaching children self-care skills at the earliest age possible is of great interest. This theme is continued into the fourth section, "Establishing Lifelong Health Patterns". This section includes chapters on dietary management, decubitus formation, and mobility.

Section V: "Developmental Expectations and Therapeutic/Educational Approaches" includes a discussion of intelligence, fine motor skills, and approaches to facilitate independent self-care.

The final two sections, "Psychosocial Adjustment" and "Long-term Management" include discussions of the impact of a congenitally malformed child on the family, as well as the problem of social isolation for the impaired adolescent. The increased survival of children with myelodysplasia has resulted in an adult population, with rather unique health care needs.

There is a great deal of information in this book, and I highly recommend it for physicians who deal with children with these congenital abnormalities. Selected parts of it should be of interest to obstetricians as well. It should be present in all myelomeningocele clinics, as it nicely documents the team approach to this problem, and provides results which other teams can use for comparison purposes.

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HANDBOOK OF NEUROTOLOGICAL DIAGNOSIS. Edited by J.W. House and A.F. O'Connor. Published by Marcel Dekker, New York, 1987. 432 pages. $106Cdn approx.

Neurotology concerns the disorders of the inner ear and its cerebral connections. The diagnosis of these disorders is as difficult as their symptoms are common. This handbook contains 12 chapters on the various procedures that may help in evaluating the patient presenting with such symptoms. The book would have been easier to read if there were introductory chapters on the anatomy and physiology of the ear. The actual contributions vary in their quality.

Several of the chapters are excellent. Lo and Solti-Bohman provide a comprehensive and well organized review of computer tomography illustrated by an excellent series of photographs. Adour has written a clear outline of how to evaluate the patient with facial nerve problems. This chapter contains some really well drawn figures of the anatomy of the facial nerve. Luxon and Raglan review the neurological examination of the neurotological patient and provide an extensive list of references.

Unfortunately, some of the chapters in the book are really not worth reading. The introductory chapter on the clinical

examination of the neurotological patient varies from the simplistic to the completely mistaken ("Because the branches of the upper facial nerve cross in the brainstem, preservation of function in the forehead indicates central disease." p. 10). The chapter on testing the dizzy patient covers nystagmography in a hopelessly confusing manner. Figure 3 illustrating the workings of caloric nystagmus shows heat causing the perilymph in the semicircular canal to fall. The only way this figure can be correct is if downward in the figure means upward in reality.

The other chapters in the book fall somewhere between these extremes. The chapter on audiological evaluation considers little outside of acoustic neuromas. It does not mention the different tests for central auditory dysfunction and relegates the stapedius reflexes to less than a page. There is inappropriate repetition between chapters on the use of the auditory brainstem responses in the evaluation of patients with tumours of the acoustic nerve, and there is too little said about the other neurological disorders that may affect the auditory evoked potentials. Other chapters deal with electrocochleography, tomography, immunology, metabolic disorders and genetics.

I would not buy this book, but I would take it out from a library and read three of the chapters.

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VISUAL NEUROSCIENCE. Edited by J.D. Pettigrew, K.J. Sanderson and W.R. Levick. Published by Cambridge University Press, 1986. 448 pages. $166Cdn approx.

The nineteen fifties were a watershed for research on the neurophysiology of vision. British traditions in optics and physiology combined with the maturing art of electronics and the new microelectrode techniques. Substance was given to the exciting notion that the responses from single neurons would reward close study and might allow, in so interesting a place as the visual system, a functional tracing, one cell at a time, from stimulus to brain. Several important schools of visual research can trace their roots to these beginnings. This collection of twenty-seven brief scientific articles covering theoretical, physiological, and psychophysical aspects of vision is a celebration of the school that arose at the antipodes and in particular the man who founded it, Peter Bishop. The origin of the book was a conference held in his honor on Lord Howe Island off the Australian coast and the contributors have all been students, collaborators, or colleagues of his, their respect and affection apparent in the short biographical notes at the end of the book.

Divided like a textbook into a sequence of sections on retina, retinogeniculate connections, development, comparative physiology, cortex, and integrative aspects the book is thorough in touching all areas of its subject. Far from being a textbook though, in a watered down or pedantic sense, this collection rings true to the varied interests of each individual author and will reward the motivated reader far more than any ordinary textbook. While editorial comments help to tie the sections together, the many points of view of the different authors is a strong point of the book. The contributors are widely international but there is a sense of that admirable, now Australian, stereotype of individualism so nicely at odds with much of current research in many fields.

Here are the diverse ingredients, from communications theory to natural history, that make vision research so attractive. The leading article by Horace Barlow considers the problems with which the visual system must deal, physical, informational, connectional and concisely reviews concepts of image processing, signal transmission, encoding and others. There are examples of fine graphics in the articles by Heinz Wassle and David Vaney, each drawing a retinal mosaic, art as well as science. Here is a well reasoned and reasonable discussion by Bill Levick of what "parallel" means in the early visual pathway and what it is good for. There is an informative summary of visual optics by Austin Hughes. From here things move along many paths through the lateral geniculate nucleus and on to the cortex and expand to include visual development and evolution. The final section on integrative aspects ranges widely and interestingly from cellular level theories of vision and responses to illusory contours, to clinical experience of visual hallucination and information processing approaches to understanding vision.

For the uninitiated some of the articles will be challenging but the writing is remarkably and consistently fine for such a multi-authored piece; concise and dense with information but nearly always clear. A close reading will be well repaid and ample bibliographies provide further direction into the literature. As review, for the more seasoned student, the articles are a rare pleasure for their economy of style.

There is much to be admired here, the authors, a lively and active group, have contributed hugely to current views on vision. Still, the reader seeking an introduction to the subject should be reminded that the better schools of almost anything seldom offer balance. For example, the anatomical perspective, on the scale encountered by the microelectrode, gets little emphasis here. Once the planar world of the retina is departed, attention is seldom paid to how the signalling of cells may be systematically related to their positions in relation to their neighbors. This functional architecture, revealed primarily in the work of Hubel and Wiesel, has been a major key to understanding principles of organization in the visual system. It is now revealing the cortical organization of colour processing and promises new insights from the use of voltage sensitive dyes.

Completeness, though, was not the intent here, and no one school can do justice to all perspectives and no one book is likely to. This is a first rate, informative and very readable collection. It offers a good dose of systems level biology, removed from the molecular view and reminding one how far that reductionist perspective may be from answering so many important questions.

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EXCITATORY AMINO ACID TRANSMISSION. Volume 24 (Neurology and Neurobiology). Edited by T. Philip Hicks, David Lodge and Hugh McLennan. Published by Alan R. Liss, Inc., New York. 454 pages. $92Cdn approx.

As explained in the introductory overview to this book, excitatory amino acids were once not even thought to be involved in neural transmission. In recent years, a massive body of