The book is dedicated to Michael Goldberger who died in 1992 and is known for his classical studies establishing that new synapses could be formed in the spinal cord following spinal root or spinal cord injury. Goldberger and his longtime collaborator Marion Murray review the controversy which followed the initial observations of Liu and Chambers in 1958 that in the "spared root" preparation, terminals of dorsal root axons could be increased in density in their normal field or extend beyond their normal projections. The data of Goldberger and Murray convincingly demonstrated sprouting of the former but not the latter type.

Carbonetto and David guide the reader through the complex field of adhesive molecules found on the surface of neurons and glial cells and in the extracellular matrix. Calcium-independent CAMs (cell adhesion molecules) belonging to the immunoglobulin family participate in axonal fasciculation and neurite outgrowth on glial substrata through axon-axon and axon-glia interactions respectively. At least 8 codherins, calcium-dependent cell-adhesion molecules, are present in the nervous system where they are thought to promote cell adhesion during early development. Laminin, fibronectin, and some collagens in the extracellular matrix all act on axons through the integrin family of receptors: antibodies to laminin or to some integrins have been shown to impede axonal regeneration in peripheral nerves. Proteoglycans can promote or inhibit neurite growth according to their carbohydrate content. Molecules that interfere with growth cone extension either by anti-adhesive or collapsing actions have attracted considerable attention during the past five years although evidence since publication of this review indicates that axons from transplanted fetal neurons can extend a considerable distance in adult white matter where such inhibitory molecules abound. Very recently, amino acid sequence has been determined for one inhibitory molecule homologous to the fasciculins that guide growth cones during invertebrate development.

Cangiano et al. review some of the signals that lead to atrophy and fibrillation in denervated muscle. In addition to interruption of anterogradely transported trophic agents and reduced muscle activity in the absence of nerve impulses, these antrons have observed that breakdown products from injured nerves influence the muscle fibre membrane during the first two weeks after nerve transection.

Theo Hagg, a recent recruit to the Canadian neuroscience community, reviews his studies with Varon on the actions of nerve growth factor (NGF) on cholinergic basal forebrain neurons. They showed that most of these neurons do not die immediately after transection of the septohippocampal pathway. Many axotomized neurons atrophy and lose their cholinergic phenotype but can be rescued from this state of suspended animation by delayed administration of NGF.

Most of the chapters describe investigations on animals or in tissue culture rather than clinical observations. As an exception, the brief chapter by Wise Young has a strong clinical orientation. He describes the time course of improvement following spinal cord injury in humans and discusses mechanisms of recovery of injured spinal axons.

The book provides a broad survey of research in neural regeneration useful to anyone looking for an introduction to the field.

Peter M. Richardson
Montreal, Quebec

OCCIPITAL SEIZURES AND EPILEPSIES IN CHILDREN. 1993. Edited by F. Andermann, A. Beaumanior, L. Mira, J. Roger and C.A. Tassinari. Published by John Libbey, London, Paris, Rome. 246 pages. $CDN 96.00 approx.

In March 1992 in Milan, Italy, the Mariani Foundation sponsored a symposium on occipital epilepsy in childhood. This multi-authored book (79 authors, 26 chapters) is apparently a complete proceedings of what must have been a lively meeting. My first scientific paper was on the topic of occipital epilepsy, my mentor – Dr. Fred Andermann. I was naturally interested to learn about evolution of thought about this special topic.

The book begins with 4 chapters that summarize present knowledge about the anatomy and physiology of the developing occipital cortex. A chapter by Sankar et al. attempts to correlate this basic science with the clinical issues of childhood occipital epilepsy. In the synopsis, Dr. Beaumanior notes "clarification of the basis for this involvement must await progress in our understanding of the neurobiology of the occipital lobe". The book makes it abundantly clear that there remains an enormous gap between knowledge about occipital anatomy and physiology and the clinical features of children with occipital seizures.

There are 4 chapters on visual testing and EEG. Then 18 chapters follow that outline many interesting syndromes including the basilar migraine – occipital seizure syndrome, benign childhood epilepsy with occipital paroxysms (several types), celiac disease with occipital calcification and television induced seizures. These chapters are very clinical with nary a statistical p value to be found. The word "epidemiology" appears in one title; however, the chapter describes a selected case series. Most of the chapters describe small series of patients – most less than 15 cases. This is classical descriptive neurology and interesting. One of the best chapters (to me) is by Rubboli and Salvi from Bolonga. They review critically, the many different techniques used in EEG activation with photic stimulation. They point out that different techniques give different results. Since EEG is important in defining occipital epilepsy syndromes, variation in clinical experience may be related to lab technique, not biologic reality.

With so many authors with differing first languages, not even Dr. Andermann has been able to smooth out all of the grammar. The summaries at the beginning of each chapter are often very hard to read.

Who should read this book? The details of each author's case series are of interest to reasonably experienced epileptologists. I think that neurology residents and those not involved in the treatment of children with epilepsy would discover from this book that occipital epilepsy in childhood is confusing and complicated. Medical school libraries should obtain this book as an up-to-date, authoritative reference for special clinical problems.

Peter Camfield,
Halifax, Nova Scotia