cerebellar hemispheres and of the brain stem, I remain unconvinced that a full appreciation of neuroanatomy can be obtained from examining only myelin-stained sections. Sections stained separately for myelin and by cresyl violet, or by a method combining them, are generally the most informative. It is, therefore, difficult to recommend this book, but it may be of some interest to students of neuroanatomy, neurologists, and neurosurgeons.

D. I. GRAHAM

Normal and Abnormal Development of the Human Nervous System By R. J. Lemire, J. D. Loeser, R. W. Leech, and E. C. Alvord. (Pp. 421; illustrated; \$27.50.) Harper and Row: Maryland, USA. 1975.

'Fills a long-felt gap' is a cliché of reviewers but the phrase is irresistible for this book. In a clear and systematic way it gathers together a vast amount of information about the development and growth of the human nervous system and gives a brief account of the major developmental anomalies. Standardised graphs present the information in a manner suitable for rapid reference so that the clinician can assess the probable time of fetal life at which abnormalities occur. With so much detail compressed into a reasonable space and so much controversial material—even in well studied syndromes such as the Arnold-Chiari—it is not surprising that there are some errors and omissions or that some interpretations do not appeal to the reader. The wonder is that it has been done so well.

J. A. SIMPSON

Clinical Examinations in Neurology Fourth Edition Mayo Clinic and Mayo Foundation. (Pp. 385; illustrated; \$10.00). W. B. Saunders Co.: Philadelphia, London, Toronto. 1976.

There are a number of elementary texts, intended for students, on the examination of the nervous system. This one is rather more sophisticated and very suitable for house officers. Indeed, it is the best short book available with a good balance between history taking, physical examination, and special tests. The latter now include CAT scanning

(here termed CTT) and a discussion of the neurovascular examination.

The methods recommended are conventional and tried by time. As usual, the impossibility of charting the normal temporal field of vision with an object less than 90° from the visual axis is not mentioned. A preferable method of field plotting by confrontation is mentioned in passing.

The book was prepared by 26 members of the Department of Neurology and the Department of Physiology and Biophysics of the Mayo Clinic and Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. It is so well edited as to appear to come from a single pen. It is highly recommended and not expensive.

J. A. SIMPSON

Membrane Morphology of the Vertebrate Nervous System A Study in Freeze-Etch Technique By C. Sandri, J. M. van Buren, and K. Akert. (Pp. 384+ix; illustrated; \$71.50, Dfl. 175.) Elsevier: Amsterdam, Oxford, New York. 1977.

This is essentially an atlas of freeze-etch preparations of the vertebrate central and peripheral nervous systems. It is beautifully produced and gathers into a single informative volume material so far available only in papers and widely scattered in scientific journals. As such, it will appeal to all who use the freeze-etch method in their work.

Freeze-etching means the examination of tissues by rapid cooling, 'sectioning'—that is, fracturing on a microtome under vacuum and allowing the ice in and around the tissue to sublime for a short period. This has the effect of etching the specimen, exposing curved membrane surfaces of which a metal/carbon replica can be made for later examination in the electron microscope. The technique, available since the early 60s, initially excited interest on two counts. Firstly, the artefact of chemical fixation appeared to be avoided in tissue preserved by purely physical means. But it was soon found that in order to achieve the smallest possible size of ice crystals and maximum resolution, tissues had to be immersed in a cryoprotectant such as glycerol. This distorted the fine

structure of many tissues, unless they were first stabilised in an aldehyde fixative. Thus chemical fixation had to be retained, although dehydration was still avoided. Secondly, the views provided of cells and organelles had a new, three-dimensional quality provided by no other technique. Fractures passed through membranes, revealing their interior, providing new insight into the structure of cells and organelles.

Despite early enthusiasm, use of the freeze-etch method has not become widespread. The main deterrent to its use appears to be the difficulty of interpretation of the micrographs. Study of the atlas will undoubtedly help, and it is to be hoped that it will thereby encourage greater use of the method. It is a little disappointing to note that the explanatory figures that accompany the illustrations are all in the form of diagrams: the inclusion of conventional thin sections for comparative purposes would have been more helpful and convincing. Perhaps these could be added to the next edition.

D. G. F. HARRIMAN

Antiepileptic Drug Monitoring Edited by C. Gardner-Thorpe, D. Janz, H. Meinardi, and C. E. Pippenger. (Pp. 388; illustrated; £16.00.) Pitman Medical Publishing: Tunbridge Wells. 1977.

This book is a record of the proceedings of the Third International Workshop on the Determination of Anti-Epileptic Drugs in Body Fluids held in Exeter in 1976. It contains 33 papers by international experts dealing both with methodology and with clinical applications. The appendix contains a useful dictionary of antiepileptic drugs compiled from the published literature.

From a study of the papers in this book it will be clear how much those of us who are concerned with the treatment of epilepsy are indebted to the pharmacologists who are devoting so much of their time to drugs which in the past have been long neglected. However, although we now have reliable methods of measuring their levels in body fluids we have still much to learn about the complexities of their actions and about how to apply the new knowledge gained to clinical problems.

M. PARSONAGE