and serum pherograms in a number of inflammatory, neoplastic, and demyelinating disorders with brief accompanying case details. Changes in the CSF protein pattern found in meningitis of varying aetiology and radiculitis are attributed largely to selective alteration of blood-brain barrier permeability. Certain changes in post-albumin and transferrin bands are of interest and deserve further study. However, in general, the data do not provide any fresh information of diagnostic importance. The problem of CSF immunoglobulins in multiple sclerosis receives only scant mention. Brain proteins and CSF enzymes do not appear to have been considered in relation to the abnormal pherograms. The standard of production and illustration is high and there is a useful bibliography with full titles. The introductory sections on electrophoretic technique and the blood-brain barrier are lucid and would be of value to students.

J. F. HALLPIKE


This volume contains the 14 papers given at the conference and the ensuing discussions. It is of the high quality one would expect from these editors and the distinguished participants. The reviews of most of the current techniques used in studying the brain as a neuronal system are authoritative, and it is of particular value to have them together in one volume. Four papers are especially concerned with the study of degenerating axons. Different methods of staining are reviewed and light and electronmicroscope findings correlated. There is an excellent review of fluorescence microscopy. Other papers are concerned with the analysis of electronmicrographs of the cortex, antoradiographic methods, and retrograde neuronal changes. As most of the papers are concerned with modern techniques it is of especial interest to note the inclusion of four excellent papers on the Golgi method, one combining light and electronmicroscopy. This 100 year old method is enjoying a resurgence of popularity and, although it is probably not extensively used, the observations made by those specializing in it are constantly quoted and applied to the interpretation of the intimate organization of the nervous system.

Most neuroanatomical work is experimental and many of the methods are restricted to animal tissue. Two of the papers, however, are applicable to, and include observations on, human tissue. One is a review of a variety of methods of counting neurones, the other an invaluable and comprehensive review of anterograde and retrograde transneuronal degeneration in the central and peripheral nervous system. The volume is beautifully produced, and can be recommended to all interested in neuroanatomy and allied subjects.

MARION C. SMITH


This book is the record of the proceedings of the 3rd Alfred Benzon Symposium held in May 1970. The contributions cover a wide range, necessary because of the complex relationships of the four compartments of the brain—namely, the blood, cerebrospinal fluid, and extra- and intracellular fluids. The study of the cerebrospinal fluid occupies the dominant position, and with reason, since it is now generally accepted that it reflects, and influences, the composition of the extracellular fluid of the central nervous parenchyma, and thus permits the experimenter to assess, with some assurance, the probable character of the ionic environment of the central neurones and glia, at any rate in the steady state. Thus the study of the homeostatic mechanisms involved in maintaining the composition of the cerebrospinal fluid reasonably constant, in the face of large fluctuations in the blood, is of primary importance; and the volume, after an introductory article on the relations between blood, brain, and cerebrospinal fluid, continues with studies on the volume of the extracellular space, the rate of secretion of cerebrospinal fluid, the kinetics of the blood-brain barrier, brain and cerebrospinal fluid D.C. potentials, and neurone-glia relationships. More directly concerned with homeostasis are papers on the mechanism by which the cerebrospinal fluid K+ is held at a very constant level when the blood-K+ is varied, while the changes due to acidosis and alkalosis emphasize the intimate relation between K+ and H+ in the brain as in other tissues. So important did the acid-base relationships appear to the organizers of the symposium, that most of the remaining studies are devoted to some aspect of these—intracellular pH, H+, and HCO3− relations in cerebrospinal fluid, effects of acetazolamide, whole-body buffering capacity, effects of acid-base alterations on HCO3−, Cl−, and lactate in brain, and control of glycolytic and oxidative metabolism. The volume concludes with three articles, thrown in for good measure, on epileptic seizures and comatose states, on the quantification of buffering in vivo, and on a hypo-
It will be seen from this brief summary of the contents that the book is something of a miscellany; the articles are all by accepted leaders in the fields dealt with and, as such, cannot fail to be of value to workers in the field of blood-brain relationships.


This atlas is intended to be used in conjunction with teaching slides by medical students and young graduates, but must, of course, be judged on its own merits. The numerous illustrations are accompanied by a brief text, including case histories, and sections covering the main diseases of the central nervous system as well as a few conditions affecting peripheral nerve and muscle are included.

Quite deliberately the author has used high magnification in the main to illustrate different disease processes in order that they should contain 'sufficient diagnostic detail to be of use to the pathologist or neurologist in training'. This mistaken policy has led to an undue emphasis on cellular pathology, much of it badly illustrated as a result of empty magnification, and a gross neglect of low power survey pictures. There are many pictures of specimens, less than half of which are of good quality and illustrate convincingly. Electron micrographs are more often of high standard, but the result may be that the student will be fully aware of the detailed fine structure of the herpes simplex virus, and ignorant of the necrosis, vasculitis, and inflammation that it produces in the brain, or be able to recall the complex cytoplasmic bodies found within neurones in Tay-Sachs disease, and little else.

There are vain attempts to depict demyelination by means of haematoxylin and eosin sections (in most instances the stains used are not mentioned), and a small vessel with a collagenous wall is said to illustrate 'thromboangiitis'. There is a penchant for using two words where one would do (infect necrosis, traumatic injury) and evidence of careless revision (both coronal and horizontal sections of the brain are called 'sagittal' from time to time, and some brain slices are maloriented). Subacute sclerosing panencephalitis is illustrated by highly magnified white matter showing one intranuclear inclusion, and three electron micrographs to show fine structural details. In the section on malformations, cyclopia is illustrated but there is no mention of spina bifida or meningomyelocele.

Such examples suffice to indicate a work that is out of balance and cannot replace any of the existing texts, old or recent; it could be used for supplementary information regarding fine structure.

D. G. F. HARRIMAN


This is the first of a series of practical books for the beginner in the neurosciences and for established workers requiring an introduction to a technique in an unfamiliar field. This volume contains some elementary comments on measurement and statistics, and on the care and treatment of the smaller laboratory animals. There are more detailed instructions on neurosurgical procedures in rats, stereotaxic techniques and the production of electrolytic lesions in the brain, followed by some elementary histological methods and a chapter on the interpretation of food and fluid intake patterns.

On the whole the book achieves its objective. Too many photographs are quite useless, but the 'cookbook' approach and bibliographies will help many beginners.

J. A. SIMPSON


The 160,000 or so words in this book deal not only with the treatment of neurological disorders, but also with their aetiology and diagnosis. They derive from guide lines to the junior staff in an East German Neurological University Clinic, and provide insight into prevailing conditions in what is unhappily still a rather isolated part of the world. One infers also from remoteness from a neurosurgical centre (transportation 100 miles to East Berlin in cases of cerebral oedema), and surgical treatment of subarachnoid haemorrhage is barely mentioned, and then only in the late stages. The mean survival time of patients with gliomas is four months, and only 11 out of 37 meningioma cases return to useful activity.

Strophanthin and prednison are given in the treatment of most conditions—the latter specifically as a general tonic. Surprisingly its use is played down in temporal arteritis, but seen as justification for a proposed aetiology of multiple sclerosis in which condition it is advocated for at least three months, in acute cases. Mercury inunction is said to help in chronic multiple sclerosis. There is almost no mention of L-dopa.

The book contains excellent advice on rehabilitation of stroke and other patients; employment of paraplegics and other disabled is said to be provided with pleasure by the nationalized industries. There is a very interesting account of the dry brain syndrome.

The authors favour wine in the evening, but not a heavy meal, which stresses the circulation, and warn against the use of intravenous horse-chestnut extract in the treatment of spinal angiomas.

E. H. JELLINEK