Book reviews

Complications of Nervous System Trauma Edited by RA Thompson and JR Green (pp 346 $38·35) Raven Press: New York. 1979.

This is a useful collection of review essays on various aspects of nervous system trauma. The title is, however, slightly misleading; only by stretching the definition of complication is it possible to claim that five of the seventeen chapters are relevant. It should have been called 'Topics in Neural Trauma'.

There is a good review of the pathophysiology of concussion with over 60 references, and the account of human neuropathology is much the best in the American literature; it both gives some quantitative data about the frequency and distribution of lesions and it gives reasonable prominence to white matter shearing lesions and its 160 references include important recent European work. A curious chapter on physiological monitoring manages to miss out intracranial pressure and to avoid reference to Europe altogether. CT scanning is inevitably represented by an extensive account of isodense subdural haematomas, and the use of the body scanner in detecting spinal fractures. Prediction of outcome after severe injury and of traumatic epilepsy are other topics. The chapter on psychological follow-up is a highly individual view which does not relate to current scientific neuropsychology. The brain damage section ends, appropriately, with a review of brain death. Experimental studies on the microvascular response to spinal trauma is followed by an account of microvascular regeneration. The medical complications of spinal cord trauma are briefly reviewed and a further chapter deals specifically with chest complications. There is an authoritative review of cervical spondylosis with beautiful illustration of operative procedures—but is this spinal trauma in the ordinary sense? Changing attitudes and developing knowledge of peripheral nerve trauma since the year 1900 are splendidly reviewed.

It is difficult in such a heterogeneous book, which does not have a coherent theme, to do much more than list its contents and make the obvious comment that some chapters are better than others. The reviews were originally given at a conference at the Barrow Neurological Institute, although this is not declared on the title page, preface or blurb—presumably to avoid the stigma of conference proceedings.

BRYAN JENNETT

Pediatric Neurology Case Studies By K. F. Swaiman and S. Ashwal. (Pp. 374; illustrated; £13.50.) Henry Kimpton: London. 1978.

The authors state that this is a book for students—it is, but for students at all levels up to professorial rank. A total of 46 actual case histories are revealed piecemeal, punctuated by well-judged multiple choice questions throughout. These teasers yet to be diagnosed either relate to the particular child and his or her neurological disorder, or to related topics so that much ground is covered. The reader will soon find himself stretched, and this is undoubtedly a book to be worked through honestly, one case at a time. Practising "adult" neurologists may receive a jolt as they find themselves swiftly carried into the world of the neonate, erudite biochemistry, developmental medicine, the young handicapped, and the practical problems actually met by the paediatric neurologist. One reason for taking longer than usual to review this book is that I have tried to answer all the questions, with salutary results. Admittedly one sees occasional errors where one can be confident that ones own answer is more correct than the authors', but most of these result from the continuing expansion of knowledge —for example, newly discovered biochemical pathways.

Paediatric neurology is a large subject and the reader should know the range of problems and disorders covered in this particular case selection. More than half the children have progressive neurological or neuromuscular disorders (for example, adrenoleukodystrophy, cretinism, Menkes' disease, homocystinuria, ceroid lipofuscinosis, MLD, gangliosidosis, SSPE, cerebral tumours, the phakomatoses, the ataxias, Hallevorden-Spatz disease(!), dystonia musculorum, myasthenia, myotonic dystrophy, muscular dystrophy and the congenital myopathies, anterior horn cell disease, and peripheral neuropathies. Other reasonably classical neurological problems include neonatal meningitis and hypoglycaemia, kernicterus, perinatal asphyxia, congenital rubella, "non-accidental injury", Reye's syndrome, Sydenham's chorea, cerebral abscess, and the other complications of cyanotic congenital heart disease.

Seizure disorders discussed include neonatal seizures (but omitting benign familial epilepsy), febrile convulsions (including acquired hemiplegia), Lennox-Gastaut syndrome, absences and absence status, and temporal lobe epilepsy. The reader will also be quizzed on milestones of development, prematurity, the floppy baby, feeding difficulty, speech delay, the large head, the hyperkinetic syndrome, learning disorders, and the subtleties of minor combinations of neurological signs in children. Of the chronic handicapping disorders there is meningomyelocele and hydrocephalus, and something on mental handicap, but not a lot on cerebral palsy and multiple handicaps. In fairness, the reader is referred to more extensive discussions in the parent textbook. *The Practice of Pediatric* Neurology, edited by Swaiman and Wright—but perhaps the relative emphasis reflects paediatric neurological practice in South America's teaching centres.

I have not detailed the errors, which are fun finding out, and which I would gladly convey to the authors should they wish. But provided the reader interested in paediatric neurology uses the book intelligently, and looks further when he disagrees with the authors, then he will know himself and the subject better. For modern books, I suppose it is almost cheap, and more worthy of buying than a first quick flip through its pages might suggest.

J. B. P. STEPHENSON

Clinics in Developmental Medicine 69 and 70 Haemorrhage, Ischaemia and the Perinatal Brain By Karen E. Pape and J. S. Wigglesworth. (Pp. 196; illustrated; £9.50.) Spastics International Medical Publications and Heinemann Medical: London. 1979.

Haemorrhagic and ischaemic lesions in the brains of the newborn represented primarily by germinal layer haemorrhage/intraventricular haemorrhage and periventricular leucomalacia in the preterm infant, and ischaemic brain damage in the birth asphyxiated infant, account for a high proportion of all neonatal morbidity and permanent neurological handicaps.

The changing vascular anatomy and physiology of the developing brain are

stressed throughout the book as is the critical role these factors play in determining the cerebrovascular diseases to which an infant is susceptible at any particular stage in maturity. The authors discuss a number of possible mechanisms for perinatal brain damage based on physiological principles established for the adult. Inevitably some of their ideas are speculative but with more information from neonatal intensive care units and carefully monitored experimental laboratory work, CAT scanning, and so on. It should be possible to establish with reasonable certainty the pathophysiology of the cerebral circulation in the newborn infant. Given this knowledge it is hoped to reduce the frequency with which catastrophic vascular brain damage occurs and to rationalise treatment in affected neonates.

The authors give a lucid account of a difficult and complex subject. The book is beautifully illustrated, has two appendices on postmortem techniques and a subject index. A list of useful references is attached to each chapter. This book is highly recommended and, though intended primarily for the paediatrician, it should be of particular interest to pathologists, obstetricians, and those concerned with perinatal care.

D. I. GRAHAM

Critical Resection Length and Gap Distance in Peripheral Nerves By Gerhard Orf. (Pp. 91; illustrated; Dm 58.00.) Springer-Verlag: Wien, New York. 1978.

This slim volume reports the author's results and conclusions of a study on 56 rabbits in which one sciatic nerve was subjected to stretching, amounting to between 2 and 10% of the total length of the nerve from a minimum of one day to a maximum of 35 weeks. The nerves were stretched around metal cylinders rather than sectioned and resutured in order to avoid any distortion of the results caused by parenchymal degeneration from neurography. The mechanical responses and the effects on the perception of pain and motor reactions and the changes produced in the target muscles are described. The histological appearances of the nerve at various degrees of stretch as these affect the perineurium and the epineurium, the axons themselves, the vasa nervorum, nerve roots, spinal cord, and ganglia are presented. The author shows quite convincingly that stretching of the nerve by more than 3% of the total length (the critical resection length) gives rise to significant damage in the nerve trunk from a combination of axonal rupture, increase in intraneural pressure, and compression of the vasa nervorum. As the critical resection length increases progressively towards 10%, retrograde cellular changes are found in the spinal cord and there is progressive delay in axon regeneration within the nerve trunk. Where, however, a nerve is anatomically tethered, as for instance, in the ulnar nerve close to the elbow, then the critical resection length is reduced to 2%. The critical gap distance, which consists of the critical resection length and the extent of retraction, is usually in the region of 8%. The author concludes that there is no place in modern reconstructive peripheral nerve surgery for the use of manipulative auxiliary measures to obtain a tension-free nerve suture on the grounds that the subsequent mobilisation of the limb to a normal position will still give rise to nerve damage if the critical resection length and critical gap distance are exceeded. In all of these cases they recommend interfascicular autografting.

This is a careful and detailed study with copious references to the literature. While exclusively carried out on the experimental animal, it is likely that percentage results can be applied to the human condition, although this will require confirmation in clinical practice. Furthermore, the author found that there was considerable variation in the ability of individual sciatic nerves in these animals to withstand stresses, and it remains possible that their results may not be strictly applicable to nerves in other situations. Notwithstanding, this book makes a valuable contribution to what has hitherto been a rather opinionated subject.

This is a very specialised volume and will be of interest mainly to those involved in peripheral nerve injury and repair to whom I can recommend it thoroughly.

J. P. BALLANTYNE

Modern Concepts in Brain Tumor Therapy: Laboratory and Clinical Investigations Edited by Audrey E. Evans. (Pp. 219; illustrated; £25.00.) Castle House Publications: Tunbridge Wells. 1979.

Although the title of this book suggests that it is a critical appraisal of present therapy for malignant brain tumours, it is in fact no more than a disjointed collection of papers, some good, some bad, presented at a conference of the Cancer Clinical Investigations Review Committee. The book has four main sections: (1) fundamental research into therapy, including pharmokinetics, (2) neuropathology, (3) new markers of diagnosis, and (4) methods of therapy including the analysis of response.

The papers in the first two sections are clear evaluations of current knowledge, and are undoubtedly the best of the book. Although some of them are dependent on animal models there is frank acknowledgment that they are not necessarily relevant to man. Most of the papers on diagnosis are good and interesting descriptions of new biochemical markers—CSF sterols and polyamines, astrocytin, and malignin. Radiology has not been forgotten, but a disproportionate amount of time is spent on arteriography, pneumoencephalography, and radionuclotide scanning, techniques superseded by CAT scanning.

The section on treatment contains a realistic appraisal of the aims and activities of the Brain Tumor Study Group, a co-operative endeavour undertaken by the National Cancer Institute. It emphasises the importance of testing preliminary results by controlled clinical trials and reviews the methods for assessing the efficacy of treatment. It also describes the results of some of the group's own therapeutic trials; mithramycin is ineffective, but a combination of radiotherapy and BCNU significantly increases survival. There is no discussion, however, on the philosophical and indeed practical questions concerning the price in human terms. The paper on surgical decompression is poor and contains little evidence to support its claim that bulk removal of the tumour is beneficial. Operation still offers little to the patient with a malignant brain tumour.

One of the contributors maintains that progress in the treatment of brain tumours will come by short steps; this book is indeed a small one. It is of no value to the occasional oncologist and of only limited use to the research worker in this field.

S. L. GALBRAITH