upper arm (two patients) or forearm (one patient).

These patients were convinced in their own minds that the pain was related to the onset of their Parkinson's disease even though in some cases there was an interval of up to a year before other, more usual Parkinsonian symptoms appeared. Classical symptoms of the disease always appeared first on the same side as the pain. One patient who experienced pain in the left shoulder and leg developed tremor in the left leg 6 months after pain onset. Riley *et al* found that patients who had experienced shoulder pain were more likely to develop bradykinesia as the first classical Parkinsonian symptom. However, we found that tremor ($n = 7$) was as likely to be the first classical symptom as bradykinesia ($n = 8$).

Eight patients had sought medical advice for their pain prior to the diagnosis of Parkinson's disease and were diagnosed as having frozen shoulder. At presentation, signs of Parkinson's disease were detected in three of these patients but the two disorders were considered by the examining physician to be unrelated.

Riley *et al* found that frozen shoulder occurred more often prior to, or simultaneously with, the onset of Parkinson's disease than after disease onset. Our data do not allow us to comment upon the incidence of limb pain after Parkinson's disease onset. However, our findings support the conclusions of Riley *et al* that pain in Parkinson's disease is not necessarily a result of reduced mobility in the advanced stages of the disease and that frozen shoulder should

be recognised as a presenting symptom of Parkinson's disease.

Matters arising

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Book reviews

Receptors and Ligands in Neurological Disorders. Intercellular and Intracellular Communication series Vol 4. Edited by A K Sen, Tyrone Lee. (Pp 319; £45.00.) Cambridge: Cambridge University Press, 1988.

The clear pathological findings in many neurological diseases have allowed techniques for the determinations of neurotransmitters and their receptors to be applied, and with the identification of specific deficits which may be responsible for the symptoms of the illness. In some, particularly Parkinson's disease, this has led to a clear concept of the primary deficits in the disease and the type of treatment required. In most neurological diseases, however, effective treatment is still not available and further effort is needed to identify the critical features of the pathological process.

The title of the book leads you to believe that it deals with receptors and ligands in neurological disorders but this is not the case. First, there is a problem over what constitutes a neurological disease rather than a psychiatric illness. Thus, there are chapters on Alzheimer's diseases, Gilles de la Tourette syndrome and attention disorders. Other chapters cover Huntington's chorea, myasthenia gravis, epilepsy, sleep disorders and transplantation. These vary from highly effective reviews of whole areas to highly specific insights into specialised topics. There are also strange omissions; for example, there is little specifically related to Parkinson's disease and other basal ganglia disorders (with the exception of Huntington's

chorea). The central role of dopamine in movement disorders receives virtually no cover whatsoever. Cerebellar disease and stroke do not appear to exist yet there is space for a chapter on the role of aluminium in Alzheimer's disease in a volume dedicated to receptors.

The volume is indeed a strange collection of topics which totally lacks cohesiveness and in which it is difficult to find the criteria for selection. The reader may find some good reviews but will be disappointed by the lack of a thorough overview of receptor research in neurology.

P JENNER

Non-invasive Stimulation of Brain and Spinal Cord: Fundamentals and clinical applications. Edited by Paolo M Rossoni, C D Marsden. (Pp 328; \$96.00.) New York: Alan R Liss, 1988.

This volume is derived from the proceedings of a workshop held on the subject of the book's title, in Sorrento, Italy in May 1987. Considerable editorial skill must have been required to have fashioned the book, with its comprehensive coverage of the subject and so little repetition.

There are 24 articles by 62 authors on aspects of non-invasive electrical and magnetic stimulation. The book is divided into four sections. The first is on the anatomy and physiology of the motor cortex and its pathways, and contains much information which would otherwise have remained somewhat inaccessible to clinicians. The second

covers aspects of safety and is generally reassuring, except perhaps for the scanning electron micrographs of the rabbits' dura after electrical stimuli far in excess of that ever used in humans. The third and fourth sections, cover clinical applications.

Magnetic stimulation has now been used in the investigation of various groups of patients with disorders of the motor system and it is probably true to say that in general the findings offer few surprises. However, there are some remarkable features of the responses from patients with incomplete spinal injuries and it is interesting that patients with spasticity but not weakness of lower limbs can have near normal central motor conduction times. It remains to be seen how useful magnetic stimulation will become in clinical investigations.

The fourth section on monitoring contains some detailed reports of methods used to stimulate and record during surgery. This is an important area in which many of us will soon be involved. With the high cost of legal settlements for neurological deficits resulting from surgical intervention, orthopaedic surgeons and neurosurgeons will insist on intraoperative neurophysiological monitoring of their cases.

The four sections of the book contain articles of great diversity, covering many different view points, each written by a group of workers actively engaged in this area of research. Almost all the leading authorities contributed and it is admirable that such a book was written and published so quickly. Some chapters do contain an indigestible excess of abbreviations and it is a pity that textbooks on neurophysiology will henceforth be illustrated by rather ugly digitised

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traces, but these are small matters.

It is right and proper that the Foreword should contain a fulsome acknowledgement of the work of Merton and Morton, and almost every paper refers to the discoveries of this remarkable pair. Without them, techniques for non-invasive stimulation of the brain and cord would not exist.

CLARE J FOWLER

The Lennox-Gastaut Syndrome. Edited by Ernst Niedermeyer, Rolf Degen. (Pp 500; \$88.00.) New York: Alan R Liss, 1988.

This is the 45th volume of the *Neurology and Neurobiology* series, and the first in this series to be devoted entirely to epilepsy. It is in fact the proceedings of a conference held in Bad Kreuznach, in September 1987, concerned with many aspects of the Lennox Gastaut syndrome. The book consists of 30 chapters, by over 70 distinguished contributors from the world of paediatric neurology and epileptology. The Lennox Gastaut syndrome was first defined in 1966 and since then has been extensively discussed, although whether the constellation of signs constitutes a specific syndrome is questionable (an issue not addressed in this text). What does this book contribute? It undoubtedly provides the most accessible source of reference material about the syndrome, and covers a wide range of topics. Some are important, recent, and not available in the English language literature, and are well covered here. As with so many published proceedings, however, there is much which is redundant or repetitive. The quality is variable, with some excellent chapters, for example on neuropathological and electrophysiological aspects, and some which are both weak and uncritical. The book is also notably poorly produced (even for a camera ready text), with mixtures of type faces, styles and formats; this does no justice to the editors or the authors, and is an abrogation of a publishers' art. This is for the shelves of an epilepsy specialist only, and one prepared to overlook the poor production quality.

SIMON SHORVON

Diagnostic Manual of Tumours of the Central Nervous System. By Anthony J Franks. (Pp 142; £45.00.) Edinburgh: Churchill Livingstone, 1988.

Of the florid production of neurological books we see nowadays, a large part is taken

by those dealing with tumours of the nervous system. Dr Franks' effort *Diagnostic Manual of Tumours of the Central Nervous System* comes now into such a rich field and obviously will not avoid being compared with other, often highly valuable, publication on the same subject.

The book has been planned rather traditionally with an introductory chapter on techniques of preparation and staining of the tissues. Artefacts are common events when fresh preparations are used for diagnostic purposes and the author describes and illustrates them comparing the advantages and pitfalls of smears and frozen sections.

The tumours are subsequently presented according to the classical sequence; gliomas first, followed by the various meningeal tumours, primitive neuroectodermal and neuronal neoplasms, nerve sheath, reticular, vascular, pituitary, pineal, germ cell tumours. The last chapters describe epithelial tumours and maldevelopmental lesions, paraganglioma, chordoma and metastases. Each chapter consists of a standard description of the main morphological features of the various neoplasms accompanied by numerous good quality illustrations. In some cases, the reader has the chance of comparing the appearances of the same lesion in smear, frozen and paraffin preparations.

Having briefly described the layout of this book, it is less easy to comment on what useful and original information it has to offer to the readers that does not already exist in other publications. Since the manual was designed, in the words of the author, "to provide a practical bench manual for use by trainees... and experienced pathologists...", I could find very little that could help in everyday diagnosis, in addition to standard descriptions and pictures. Nor does the recurring statement that "further sampling" be done help very much; while every pathologist is aware of the fact that more sections should be examined in order to make the best possible diagnosis, the present neurosurgical trend is towards performing more and more CT directed needle biopsies which give the pathologist very little tissue. Unfortunately, I could not see any comment on this subject.

Furthermore, I would have liked some more display of immunohistochemical expertise by a pathologist who has done a lot in this field; GFAP is frequently mentioned but other important markers are not sufficiently dealt with in the differential diagnosis; yet most laboratories have access to antibodies and some directive on the subject could have certainly helped to avoid misuse

and misinterpretations.

In conclusion, a rather conventional book which can offer limited help to everyday neuropathological work. This, the few inaccuracies and the relatively high price are the main liabilities which are only marginally offset by a succinct text and nice pictures.

F SCARAVILLI

Evoked Potentials III: The Third International Evoked Potentials Symposium. Edited by C Barber, TBlum. (Pp 487; £108.00.) Guildford: Butterworth Scientific, 1988.

This well-produced volume contains selected papers from the Evoked Potentials Symposium which was held in West Berlin in late 1986. The most important and useful part of the book is the first section, termed Background and Perspective. This contains eight review articles by invited participants, and all are well worth attention from anyone with more than a passing interest in clinical neurophysiology. A clear summary of near- and far-field potentials and the junctional potential by Kimura is followed by an idiosyncratic but enjoyable overview of auditory evoked potentials by Jewett, and then by Bodis-Wollner's paper on the up and coming N70 component of the VEP. Mauguier's chapter on upper limb SEPs and the possible role of mapping is characteristically clear and thorough, and as usual induces feelings of guilt and resolutions about trying harder with non-cephalic references. Would that one had the time and the technicians for what is now routine in Lyons, but two runs of two thousand averages per side makes it a lengthy business. Event related potentials are reviewed, in as much as such a confusing mass of data can be briefly reviewed, by McCallum, and Allison summarises current views of aging and maturation of EPs, both short- and long-latency. Lehmann assesses EP mapping, with some comments on analysis thereof, and finally Kaufman and Williamson review some recent developments in the emerging field of magnetoencephalography, as applied to evoked potentials.

The rest of the volume comprises 60 papers chosen from those submitted and presented at the Symposium. There is the traditional section for each of: AEPs, VEPs, SEP, Cognitive Function and Multimodal studies, as well as five papers on the relatively new field of motor evoked potentials. Many of these papers, perhaps the VEP section in