The direction of scratch test

I read with interest the letter by Dr Motoi *et al*[1] on the use of "direction of scratch" test in the assessment of posterior column dysfunction. They correlated the number of errors in the scratch test with central conduction times in somatosensory evoked potentials and with vibration perception thresholds, demonstrating correlation coefficients of 0·56 and 0·34 respectively ($p < 0·01$). This led them to conclude that the scratch test could be "recommended as a simple and yet reliable clinical neurological examination for detecting posterior column dysfunction".

In Hankey and Edis' original description of the sign,[2] they defined a clearly abnormal test as 3 or more errors out of 10. Applying this definition to Motoi *et al*'s data for central conduction times, the predictive value for a positive test is only 60% (that is, 60% with an abnormal scratch test will have abnormal central conduction times). Conversely, the predictive value for a negative test is 80% (that is, 80% with a normal scratch test will have normal central conduction times). These figures cast some doubts on the usefulness of this test for clinical assessment of posterior column function.

Predictive values for the scratch test could not be calculated for vibration perception thresholds as Motoi *et al* did not provide a normal range. It would be of interest to have this information.

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1 Motoi Y, Matsumoto H, Kaneshige Y, Chiba S. A reappraisal of "direction of scratch" test using somatosensory evoked potentials and vibration perception. *J Neurol Neurosurg Psychiatry* 1992;55:509–10.
2 Hankey GJ, Edis R. The utility of testing tactile perception of direction of scratch as a sensitive clinical sign of posterior column dysfunction in spinal cord disorders. *J Neurol Neurosurg Psychiatry* 1989;52: 395–8.

BOOK REVIEWS

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NEUROMETHODS 22: Animal Models of Neurological Disease, II. Metabolic Encephalopathies and the Epilepsies. Edited by AA BOULTON, GB BAKER and RF BUTTERWORTH. (Pp 373; Price: £76.00). 1992. Published by Humana Press. UK Distrib: Chichester, J Wiley & Sons Ltd. ISBN 0-89603-211-6.

Neuromethods 22 is the companion volume to Neuromethods 21 which had covered animal models of neurodegenerative diseases. The purpose and format of the current volume is identical to its partner in that experimental animal model systems of neurological diseases are discussed in both general and practical terms. Not only is the general style totally consistent with Neuromethods 21, but the very high standard has been maintained. Indeed, I found this volume even more relevant to common clinical problems. Despite the title of the book, its scope is slightly wider since it covers animal models of human stroke and brain hypoxia, a variety of metabolic encephalopathies and also various models of epilepsy.

There are opening chapters on experimental models of human stroke and animal models of brain hypoxia. These subjects are obviously complimentary to some extent and both include detailed experimental protocols. Dr McCandless has co-authored all three excellent chapters on seizures (as well as the one on human stroke), and these include chemically induced models of seizures, the kindling model of epilepsy, and genetically based animal models of seizures. Although kindling is a well-known phenomenon the precise mechanisms explaining this phenomenon are still not fully understood. These chapters are short but concise. There are a variety of chapters on metabolic animal models including those of the Wernicke-Korsakoff syndrome, hepatic encephalopathies, Reye's syndrome, Niacin-Nicotinamide deficiency, pyridoxine deficiency and a final chapter on hereditary hyperammonaemias. All are of considerable interest both for basic scientists and clinicians. In general the experimental detail of this volume is even greater than that of Neuromethods 21. I was particularly struck by the chapter on the hepatic encephalopathies in which even the eight types of instruments and three types of suture materials are included! In general there were rather more illustrations and diagrams in this volume, which I welcomed.

Unquestionably this volume is every bit as good as its sister volume, and the two books together will serve as an invaluable source of general and practical information on experimental animal models of a variety of human neurological diseases. Despite its high price of £76·00 it is likely to be highly valued by neuroscientists.

PETER GE KENNEDY

Principles and Practice of Restorative Neurology. Edited by R R YOUNG and P J DELWAIDE. (Pp 222; Price: £40.00). 1992. Oxford, Butterworth Heinemann. ISBN 0-7506-1172-3.

Recovery of function following a lesion in the central nervous system has always been an enigma to the Neurologist. The phenomenon is important because if the mechanisms of recovery were understood, not only would the mode of organization of the central nervous system be clearer, but opportunities for aiding this recovery would become more likely. In the 1960's the concept that following partial denervation the undamaged central nervous system would react in such a way that unused or little used pathways would become more effective was first suggested, on the basis of experimental studies, together with the corollary that part of the clinical picture seen after a lesion in the central nervous system was, in fact, due to the reaction of the intact central nervous system. This implied that the problem of rehabilitation of patients with chronic neurological deficit should be via active "re-education" of the intact central nervous system and moved rehabilitation away from the management or treatment of complications which arise as a result of dysfunction.

The phenomena of sprouting of new synapses, unmasking of existing synapses, and alteration of receptive fields, have altered our view. By the late 1970's and early 1980's restorative neurology was established. There may be earlier claims for the coining of the term "restorative neurology" but it was Dimitrijevic who defined it as a branch of neurological sciences concerned with active procedures applied to the impaired nervous system in order to modify abnormal neuro-control. Since that time there has been an increasing interest in neuromodulation of the nervous system using physical or chemical stimulation and other methods to alter neurological function. The field is something of a departure from conventional neurology. Although very accurate diagnosis is essential, the emphasis in restorative neurology has always been on trying to assess the neurophysiological state as accurately as possible.

The interests encompass those of the basic scientist interested in plasticity of the nervous system, engineers involved in computer modelling, the Neurologist and Neurosurgeon involved in the function of the nervous system, the Anaesthetist with an interest in pain, and even the Vascular Surgeon and Cardiologist who sees the effect of neuromodulation outside the central nervous system.

In this excellent book, the editors Delwaide and Young define restorative neurology as a subspeciality of neurology dealing with "techniques and strategies used to restore a disordered nervous system to a state of optimal function" and they stress the wide ranging interests and specialities of the proponents, many of whom contribute to this volume. The editors, again, stress the importance of correct diagnosis and the importance of quantitative assessment.

There are chapters reviewing the epidemiology of disability, quantitative evaluation, biochemical changes after stroke and trauma, plasticity, pharmacotherapy, engineering aspects, principles of motor learning and training, as well as more conventional chapters on stroke, spinal cord injury, multiple sclerosis and Parkinson's disease. Newer technologies and disciplines of neurostimulation, surgical treatment of epilepsy and molecular genetics are summarized and the editors conclude with a thoughtful look to the future.

This book is strongly recommended.

LS ILLIS

Plasticity in the Nervous System (Monographs in Neuroscience Series. Vol. 5). English Edition, Revised and Updated by BORIS I KOTLYAR. Translated and Edited by JOHN K YOUNG. (Pp 305; Price $56.00, £30.00). 1992. Philadelphia, Gordon & Breach Publishers. ISBN 2-88124-525-0.

The content of the report is exclusively clinical. There is a useful chapter on differential diagnosis highlighting the need to exclude extrapyramidal disorders such as Huntington's disease and Wilson's disease which may initially present as a psychosis. The chapter on epidemiology, risk factors and outcome emphasises the methodological problems encountered in obtaining meaningful data. Other chapters deal thoughtfully with treatment, prevention and litigation issues, and the final summary is excellent.

The book can be recommended to both neurologists and psychiatrists and at £22·50 represents outstanding value.

EGS SPOKES

Peripheral Neuropathy 3rd Edition (2 vol. set). Edited by P J DYCK and P K THOMAS (Pp 1720 Illustrated; Price: £246.00 set). 1992. London, WB Saunders Co. ISBN 0-7216-3242-4 (Set).

Every 9 years Dyck, Thomas and a galaxy of co-authors rewrite their epic, two volume, Peripheral Neuropathy. If it were not just one of the hundreds, probably thousands, of clinical, experimental or anatomical contributions made by Peter James Dyck and Peter Kynaston Thomas to the neurosciences it would still be a gigantic undertaking. Words such as prodigious, stupendous or formidable do not quite explain the immensity of the work in size, scope or depth of detail. The editing and production are excellent. The text is well-written throughout, lavishly illustrated, with ample references, a helpful index and cross-references between sections.

The clinical section (volume 2) is a reminder of patients seen and puzzled over, one's successes, and others one might prefer to forget. I was once obliged to write up two cases of familial lumbar syringomyelia for my chief—the condition is now referred to as HSAN type I. JZ Young in his introduction states that real progress into the neurobiology of peripheral nerves started with the publication of the Medical Research Council's pamphlet (War Memorandum No 7, 1941) Aids to the Investigation of Peripheral Nerve Injuries prepared by a distinguished hotch-potch of specialists better known for their studies of other parts of the nervous system. My colleagues and I still carry an updated version of the MRC pamphlet and will update for special reference our edition of Dyck and Thomas.

Volume 1 covers the science of the PNS and provides an excellent bibliography for the specialist as well as a clear text for the clinician. Gross and microscopic anatomy are succeeded by propagation of the nerve impulse, peripheral sensors, muscle spindles, Golgi organs but not the motor end plate which is ignored in all aspects. Channel function in axons and support cells is discussed, as is axonal transport, but in a different section 200 pages later. The section on function devoted to the autonomic nervous system is of clinical importance as the ANS is not comprehensively discussed in volume 2. Special attention is paid to the pupil, the enteric nervous system and cardiac innervation but the lungs receive scant mention and cardiac function stops short of the sick sinus syndrome or the assessment of syncope. The embryological section is exciting, and includes the determination of axonal calibre, though elsewhere one is reminded that no axon is of uniform calibre.

The clinical volume 2 covers disease of cranial nerves, anterior horn cells (including MND), plexuses, entrapments and neuropathies from whatever cause. There are strong supporting chapters on genetics (with an explanation of imprinting), epidemiology, toxicology, rehabilitation and pain. Clinicians will find this volume invaluable though at times the experts stop short of answering clinical problems. The percentage risk of drug induced neuropathy is rarely mentioned, there is no discussion of recurrent facial palsy, no advice on when to use plasma exchange in the Miller-Fisher syndrome. Botulinum toxin was omitted. These are admittedly quibbles. No self-respecting neuroscience department can function without the two volumes. We may note JZ Young's comments:

"Reading about the splendid developments in the 94 chapters of the new Peripheral Neuropathy has made me sad that I did not continue to work with peripheral nerves. They are indeed marvellous material for experiment and they allow the truly exact scientific and medical discoveries that are recounted in this book."

EMR CRITCHLEY

Motor Disorder in Psychiatry. (Towards a Neurological Psychiatry.) By DANIEL ROGERS (Pp 159; Price £24.95). 1992. Chichester, J Wiley & Sons Ltd. ISBN 0-471-93616-2.

This scholarly book, founded on Rogers, work at Friern Barnet with Dr Richard Hunter, is an outstanding historical essay rather than a practical treatment guide. It complements rather than replaces the now classic book by Lohr and Wisniewski (Movement Disorders: a neuropsychiatric approach: John Wiley & Sons 1987) which is a longer, bedside-orientated guide to the fascinating and complex world of tics, mannerisms, stereotypies and the like, encountered in the borderland between neurology and psychiatry.

Rogers' achievement in this book is to combine the brain-based scientific and the psychological non-scientific approach. He starts from the viewpoint of the old classic psychiatric textbooks, moves through the era of encephalitis lethargica, and ends with the review of recent studies by both psychiatrists and neurologists. This synthesis is outstanding, especially when it is as clearly written as here.

Of course there are problems. The neuroleptic malignant syndrome gets scanty mention and there is little or no discussion of practical treatment. There is no mention of cataplexy, myoclonus, or punding. Rogers appears to favour the idea that catatonia and parkinsonism represent different degrees of the same motor disorder. There is no mention of the possible use of clozapine and related drugs in the management of psychiatric problems with levodopa. These are minor omissions. The book contains a valuable appendix of selected rating scales for motor disorder used in psychiatry. There is an intriguing description of both *mitgehen* (the "angle-poise lamp" arm, raising in response to pressure); and *hypermetamorphosis*, (randomly approaching various objects including, for example, a waste basket, rummaging in it, extracting an apple core and eating it). There are useful sections on posture, tone, abnormal eye movements and blinking as well as on disordered speech production, with 20 pages of references. A few illustrations are included, mostly from the encephalitis lethargica era, and there is a (just) adequate index which includes the condition of *schnautzkramf*, a term used by Bleuler to describe dystonic pursing of the lips accompanying melancholic phases and disappearing during manic phases in schizophrenia. Rogers concludes by saying there is not a "psychiatric brain" and a "neurological brain". This scholarly essay is a milestone in bringing together our understanding of psychiatric disorder and cerebral function as applied to motor disorder. A good read, well worth the money.

JD PARKES

The Temporal Lobes and the Limbic System. Edited by M R TRIMBLE AND T G BOLWIG (Pp 288 Illustrated; Price: £39·50) 1992. Petersfield, Wrightson Biomedical Publishing Ltd.

This is a multi-author text which begins with a discussion of the concept of the limbic system and ends with a philosophical treatise on the brain and consciousness. The early chapters deal with essays on the anatomy, physiology and pharmacology of the hippocampus. Clinical essays relate the temporal lobes to epilepsy, psychosis and affective disorders. The contribution of new imaging techniques and quantitative neuropathology are highlighted and there are interesting discussions of the relationship of memory disorders and the "epileptic personality" or Gastaut-Geschwind syndrome. The clinical syndromes arising from cerebral vascular disease and tumours in the limbic system are described and a brief section is concerned with the aetiology of medical temporal sclerosis. The contributions arising from Europe and the USA are informative and economically presented and represent another success in building bridges between the Neurosciences Neurology and Psychiatry.

D NEARY

NOTICE

The International Society for Pediatric Neurosurgery. The annual meeting will be held in Birmingham on 25–28 September 1994. Further details from Anthony D Hockley, Neurosurgery Department, Queen Elizabeth Hospital, Birmingham B15 2TH, UK or The Secretariat (Miss Moira Wilson), Universal Conference Consultants, China Court Business Centre, Ladywell Walk, Birmingham B5 4RX, West Midlands, UK.