It is in this large group of patients therefore that the interpretation of the lumbar puncture result is critical, because failure to diagnose a ruptured aneurysm can be fatal.

The point of contention is the definition of xanthochromia. In the paper by MacDonald and Mendelow,[3] xanthochromia was determined by direct vision; in Vermeulen's paper, xanthochromia was determined by spectroscopy. Since the vast number of reports issued in the West of Scotland were based on visual inspection, and since most laboratories in the North of England similarly base their reports on visual inspection and not spectroscopy (15/15 laboratories recently surveyed), then the absence of xanthochromia cannot be taken as excluding a subarachnoid haemorrhage. If practice in Holland is such that a spectroscopic report is produced routinely in all hospitals, then Vermeulen *et al*[1] are correct in their environment, but their conclusions would be invalid in many hospitals in the United Kingdom, where visual inspection remains the normal practice.

Care should therefore be taken in interpreting their paper, and a ruptured aneurysm cannot be excluded on the basis of absent xanthochromia unless a *spectroscopic* examination has been shown to be negative.

It will also be important to know the long term fate of the nine patients who they failed to subject to angiography: four years is a relatively short follow up period for a suspected subarachnoid haemorrhage.

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1 Vermeulen M, Hasan D, Blijenberg BG, Hijdra A, van Gijn J. Xanthochromia after subarachnoid haemorrhage needs no revisitation. *J Neurol Neurosurg Psychiatry* 1989;**52**:826–8.
2 Adams HP, Kassell MF, Torner JC, Sahs AL. CT and clinical correlations in recent aneurysmal subarachnoid haemorrhage; a preliminary report of the cooperative aneurysm study. *Neurology* 1983;**33**:981–8.
3 MacDonald A, Mendelow AD. Xanthochromia revisited: a re-evaluation of lumbar puncture and CT scanning in the diagnosis of subarachnoid haemorrhage. *J Neurol Neurosurg Psychiatry* 1988;**51**:342–4.

Pathology of neuroleptic malignant syndrome

Drs Jones and Dawson reported myopathic changes consisting of increase in muscle fibre size, vacuolation, segmental necrosis and regeneration in a fatal case of neuroleptic malignant syndrome (NMS).[1] We have recently studied the histopathology of this disorder and our observations are at variance with these findings. The most conspicuous feature in our case was excessive and irregular contraction of muscle fibres with mild oedema but no muscle necrosis or evidence of regeneration. Histochemical staining was normal except for mild depletion of glycogen and lipid, probably due to utilisation. Electron microscopy showed disintegration of Z bands, the remaining ultrastructure being normal. There was no primary myopathy in our case. Oedema and glycogen depletion in NMS (in addition to muscle necrosis) were also reported by Martin and Swash.[2] Interestingly, Z band disintegration was also observed in malignant hyperthermia[3] suggesting a common pathogenetic mechanism for these clinically indistinguishable conditions.

Our patient had a non fatal illness and the absence of a myopathy is probably due to the mild nature of the disease and the prompt initiation of therapy with dantrolene sodium. Assuming that a pre-existing myopathy had been excluded in Drs Jones' and Dawson's patient, the discrepancy between their findings and ours could be explained by the different disease severity in the two patients. On the other hand, postmortem changes probably account for the absence of hypercontractile muscle fibres in their case.

It would appear that there is a wide spectrum of pathological changes in NMS depending on disease severity. Muscle biopsies in a large number of patients with NMS will help to resolve this question.

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1 Jones EM, Dawson A. Neuroleptic malignant syndrome: a case report with post-mortem brain and muscle pathology. *J Neurol Neurosurg Psychiatry* 1989;**52**:1006–9.
2 Martin D, Swash M. Muscle pathology in the neuroleptic malignant syndrome. *J Neurol* 1987;**235**:120–1.
3 Harriman DGF. Malignant hyperthermia myopathy—a critical review. *Br J Anaesth* 1988;**60**:309–16.

Drs Dawson and Jones reply

Our publication aimed, in the discussion of the pathogenesis of NMS, to focus attention on muscle rather than the central nervous system, as we found a striking picture of toxic myopathy in skeletal muscle but only non-specific changes in the brain. The observation, by Drs Bakheit and Behan, of pathological change in the Z-bands in muscle in their patient, supports this shift in focus.

The changes we found in muscle led us to support suggestions that a common mechanism underlies both NMS and malignant hyperthermia (MH). Drs Bakheit and Behan's observation of muscle Z-band disintegration on electron microscopy, and reference to the same change being seen in MH, supports our views again.

There was no clinical indication of a pre-existing myopathy in our case. The differences in the muscle changes reported by us, and those observed by Drs Bakheit and Behan, may well reflect the difference in severity and outcome of the illness in the two patients, rather than a difference in underlying pathology.

We agree that study of muscle biopsy in more patients with NMS is needed to better identify the changes that occur; this concurs with Dr Harriman's conclusions, in his review of MH myopathy, of the benefits of histopathology.

Unilateral paresis of the abdominal wall

I have read with interest the letter from FPJ Billet, H Ponssen and D Veenhuizen.[1] We do not agree with the authors when they say: "This radicular syndrome has not been described before." In fact LJ Benaim *et al* published two similar observations in 1986.[2,3]

We would like to point out the interest of EMG in these cases.[2,3] The study of the abdominal wall muscles allow us to affirm the peripheral neurogenic character of the pseudo-eventration of the lower and lateral part of the abdomen. The study of the paravertebral higher lumbar muscles, when they show positive sharp waves, suggests the radicular origin of the symptoms.

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1 Billet FPJ, Ponssen H, Veenhuizen D. Unilateral paresis of the abdominal wall: a radicular syndrome caused by herniation of the L1 L2 disc? *J Neurol Neurosurg Psychiatry* 1989;**52**:678.
2 Benaim LJ, Papy JP, Servant JM, Givaudan JF, Acquaviva PC. Atteinte des deux premières racines lombaires et paralysie des nerfs abdomino-génitaux, données cliniques et électriques. Revue d'EEG. *Neurophysiol* 1985;**15**:251–4.
3 Benaim LJ, Papy JP, Servant JM, Givaudan JF, Acquaviva PC. Lesions of the first and second lumbar roots and ilio-hypogastric, ilio-inguinal palsy. Clinical and electrical data. *Electroencephalography and Clinical Neurophysiology* 1986;**63**:75.

BOOK REVIEWS

Manual of Clinical Problems in Neurology — 2nd Edition. Edited by J P Mohr, M.D. (Pp 400. Price: £9·95.) Little Brown Spiral Manual. Distributors: Edinburgh: Churchill Livingstone. 1989.

The 12 authors contributing to this text maintain a consistent quality and absence of stylistic unevenness, which is in itself remarkable. Since the first edition, four years ago, essential additions have been made to cover newly developing fields on brain imaging and AIDS and a successful attempt has been achieved in updating the text.

This manual was developed against the needs of internists preparing for board examinations in the specialty and also for busy clinicians in the specialties of neurology and internal medicine; awareness of the needs of senior medical students, electively studying neurology, was also taken into account. The manual succeeds on all these scores. It is refreshing to read. It emphasises conciseness and accuracy and although there are minor differences in emphasis in the transatlantic experience, most particularly in a more active or aggressive approach to therapeutics, this is as good and useful a manual of the clinical problems in neurology as any I have recently read.

Practical aspects of clinical neurology are comprehensively and interestingly covered. Appropriate background neuroanatomy and physiology are included where relevant, and are apt and precise. The inclusions of sections on paediatric neurology and laboratory studies are a welcome addition to a book of this kind and are reliably instructive for those not in everyday contact with the subject at specialist level. Similarly, the chapters on brain stem and cranial nerve disorders, which include a careful and well written appraisal of neuro-ophthalmological disorders, will appeal to those with an ophthalmological inclination. For the clinical neurologist, this provides a valuable clinical resumé especially

useful and recommended for teaching purposes, and it has a steady momentum which makes it enjoyable to read. The specialist may find minor differences of emphasis, opinion and practice. The sectional annotated key references are well chosen and are a further educational stimulus.

This is an excellent, wide-ranging manual and it achieves what it sets out to do. It slips easily into and out of a white coat pocket and is a valuable book for use in the wards or in the clinic. I recommend it to neurologists and physicians in training, and to senior medical students for reference and instruction. Clinical Neurologists can read it with pleasure and profit as a short text book of neurology. If, as I hope, this manual can be revised into a 3rd edition and on into further editions at approximately three to four year intervals it deserves to become an essential vade mecum.

J R HERON

The EEG Handbook. By Frances M Dyro. (Pp 99. Illustrated; Price: £15·95.) Boston, Little, Brown & Co. U.K. Distributors: London, Churchill Livingstone. 1989.

This is a well balanced short book on the interpretation of EEGs from adult subjects. There are brief introductory sections on technique and on montages followed by 50 full page illustrations of eight channel EEGs, each with a short description. Bipolar montages and the 10–20 electrode placement system are used. The topics covered include the normal adult EEG, artefacts, drowsiness, sleep, activation procedures, slow wave disturbances, epilepsy and brain death. There is a short section on report writing.

No special knowledge of physiology or technology is required to understand this book and it will serve extremely well as a sound introduction to the interpretation of EEGs and EEG reports. Although of North American origin, the techniques used differ little from those commonly used in Europe. It can be recommended both to medical and paramedical staff.

M HAYWARD

Cerebral and Spinal Computerized Tomography. 2nd Edition. By S. Lange, T. Grumme, W. Kluge, K. Ringel and W. Meese. (Pp 267 Illustrated; £34.20; US $54.75; S Fr. 82; DM 98). Basel, Karger 1989.

Joseph H. Long and Richard Bartlett have rendered us great service by translating this profusely illustrated German volume which amounts to a comprehensive atlas of CT.

After a remarkably clear exposition of physical and technical principles, artifacts and techniques of examination it surveys in turn: the normal brain, head injuries, paediatric malformations and encephalopathies. Adult disorders include vascular, degenerative, infective and neoplastic lesions and illustrate diseases involving the orbits, ventricles, calvarium and skull base. The final section covers spinal CT and is succeeded by a list of the 110 high quality plates, 215 references and an adequate index. Each topic contains a lucid factual description, and, beautiful three tone diagrams which correspond to the CT plates on the opposing page. Classifications and tabulated summaries and aggregated data expand the text.

Clinicians have learnt the techniques of interpretation of CT by trial and error methods, backed up by the essential expertise of their neuroradiologist friends. But, here is an opportunity to match their technical know-how and experience, for reference to this excellent atlas covers all the common disorders and many rare variations likely to be encountered in day to day neurological and neurosurgical practice.

It is a superb compilation which I shall keep constantly at my elbow. Priced at £34.20 it must be the best buy of the year.

JMS PEARCE

Coping with Suicide. By Donald Scott. (Pp 77; £3·50.) London: Sheldon Press. 1989.

This book is one in a series of books concerned with "overcoming common problems". It is intended for a non-professional readership for whom writing a relevant and yet scientifically accurate account is no easy task.

In his book the author gives a fairly straightforward account of some of the basic information about suicide: the size of the problem, its causes, contributing factors and so on. However, there is a tendency to be over-inclusive. For instance, it is arguable as to whether a chapter on "mercy killing" is justified, particularly since the problem of coping with suicide is only addressed in the last three chapters, i.e. it occupies less than a quarter of the book. More might have been written about such aspects as grieving and self-blame about which the reader will find disappointingly little.

Although there is much of interest in this book, reflecting the author's knowledge of the subject, in the reviewer's opinion he has not been sufficiently selective in focusing more on coping with suicide, as the title suggests.

K SCHAPIRA

The Bridge between Neurology and Psychiatry. Edited by: Edward H Reynolds and Michael R Trimble. (Pp 424. Illustrated. Price: £47.50.) Edinburgh: Churchill Livingstone. 1989.

The title of this book is taken from a dissertation given by Sir Denis Hill in 1964 on the schism between neurology and psychiatry. This schism, the oldest in clinical medicine according to Denis Williams in his foreword, has always been the subject of hot debate. Sir Denis Hill's career spanned both disciplines, working as he had done at both the National Hospitals in Maida Vale and Queen Square and at the Maudsley Hospital, and as an academic neurophysiologist and psychiatrist. He considered the specialties inextricably linked; and this volume, which is essentially a collection of essays, was assembled to honour his contribution to both neurology and psychiatry.

The book explores the reasons for this medical sectarianism, some honourable some bizarre and some quite nonsensical, and covers those clinical areas which stride the divide such as epilepsy, hysteria, memory disturbance, sleep, movement disorders, schizophrenia, and anxiety. Chapters contributed by Sir Denis and Professor Lishman both address the historical (hysterical?) basis for this dissociation and make fascinating reading. That the dichotomy is well entrenched in British practice is clear from Sir William Tuke who could write in 1857 of asylum superintendents that "Alienist physicians, as they are well called, work in a department of science the first principles of which are not even recognised by their medical brethren, and seem often to speak a language not understood by those around them; and thus indisputable facts and conclusions in psychological medicine become liable to be ignored or passed over"; the same is still largely true today.

It may be thus surprising that the modern basis of psychiatry was laid to a great extent by those trained in neurology (especially in continental Europe, eg. by Freud, Wernicke, Charcot, Janet, Meynert—who, incidently, subtitled his psychiatric textbook "diseases of the forebrain"). Professor Lishman (psychiatrist) sees the division between the specialties as reflecting the personalities of those attracted to each, psychiatrists like abstraction and neurologists are more concrete; the division is therefore an aspect of human diversity (a psychiatrist's viewpoint), or could it be hypofrontality (a neurologist's view?). Dr Reynolds (neurologist) in his chapter on structure and function reviews the evidence for hypofrontality in schizophrenia; indeed many contributors cite schizophrenia as evidence of the bridge: hypofrontality perhaps. But Dr Reveley psychiatrist, in his chapter, "the Brain in Schizophrenia" implicates the temporal lobes, the limbic system, the basal ganglia, the corpus callosum and the left hemisphere as well. (Would a better title have been "is schizophrenia in the brain"?) The question of "consciousness" (evolution's greatest achievement, in Popper's view) has perhaps taxed psychiatrists more than neurologists, and this is strange because neurology often deals with its attenuation and psychiatry with its exaggeration. Sir Denis Hill's 1981 lecture on the subject, gives a fascinating discussion of the views of Henri Ey who viewed pathology as the loss of control of consciousness to maintain order over disorder, and the suggestion that schizophrenia is essentially a disorder of consciousness (so much for hypofrontality?). It fell to the neurologists Head and Holmes to introduce the concept of body-image, which has been enthusiastically taken up by Dr Cutting in this book. Schilder viewed body image as a libidinous psychological entity while Head's body schema was a physiological representation of postural sensation (who said there was a bridge?). Indeed, this subject has produced a Hobson Jobson of entertaining terms (passive hemiasomatogosia, somatoparaphrenia, alloesthesia, exosomesthesia, anisodiaphoria, misoplegia, autocriticism, autoscopy, dysmorphophobia).

To bring us firmly back to earth are the final chapters on neuropsychopharmacology, new genetics and neurotransmitters where terminology is less rooted in the Greek but thus more obscure and much less fun. The preceding essay is entitled "Disorders of verbal expression in neuropsychiatry" (by DF Benson), which seems appropriate. Indeed, students of the mind-brain are used to puffery and bafflegob, but this all adds to the entertainment. Woody Allen (a real case, but sadly not a contributor here) had the last word when he said that his brain was his second most favourite organ.

In this book are psychiatrists taking neurological stances and neurologists being psychiatrists.

All is thus confusion; but does a bridge exist? A bridge implies a gulf, but surely this is illusion; rather the study of brain-mind is a maze, with psychiatrists and neurologists both thoroughly lost in the middle. But what an interesting maze, and one enriched by this excellent collection of essays.

SIMON SHORVON