Metabolic ward studies have demonstrated that weight-maintaining diets of unrefined cereals and starch-containing vegetables (75% energy) produced within 14 days remission of mature-onset diabetes in 85% of patients; they discontinued antidiabetic drug therapy.³ After discharge patients were advised to continue a maintenance diet of unrefined cereals and starch vegetables (60% energy) and dietary fibre (neutral detergent fibre 50 g/d). All nine patients who elected not to continue this maintenance diet relapsed quickly; on the other hand, 15 patients who took the maintenance diet have been observed for 6-48 months without relapse (Anderson, personal communication, 1979). Dietary details were stated briefly in the cited article³; more detailed diets can be obtained from the authors, Veteran's Administration Center, Lexington, Kentucky 40507, USA.

D P BURKITT

Unit of Geographical Pathology,
St Thomas's Hospital Medical School,
London SE1 7EH

H C TROWELL

Woodgreen,
Nr Fordingbridge, Hants SP6 2AZ

¹ Morris, J N, Marr, J W, and Clayton, D G, *British Medical Journal*, 1977, **2**, 1307.

² Burkitt, D P, and Trowell, H C, *Refined Carbohydrate Foods and Disease: Some Implications of Dietary Fibre*, p 227. London, Academic Press, 1975.

³ Kiehm, T G, Anderson, J W, and Ward, K, *American Journal of Clinical Nutrition*, 1976, **28**, 895.

Altered bile in diabetic diarrhoea

SIR,—We would certainly agree with Dr J H B Scarpello (6 January, p 58) that cholestyramine has not always been helpful in the treatment of diabetic diarrhoea. There are many reasons why this is so and the following case history demonstrates that in an individual patient there may be more than one cause of "diabetic diarrhoea."

A 48-year-old man who had had diabetes for 18 years was referred with a long history of impotence and a 12-month history of poor control of diabetes and weakness of the legs. He had recently developed an ulcer on the left heel. Seven weeks before admission the patient started to complain of intermittent explosive watery diarrhoea, sometimes nocturnal, and sometimes this led to faecal incontinence. On examination he had diminished sensation in the feet and absent ankle jerks. The left foot was colder than the right with absent dorsalis pedis pulse and a necrotic ulcer on the heel. His blood pressure was 130/80 mm Hg standing and 130/90 mm Hg lying down. Barium enema, sigmoidoscopy, and stool culture for pathogenic organisms were negative. The results of the bile salt analysis are given in the accompanying table. There was a reduction in the fasting pool size and an increase in the faecal excretion of bile acids; 22.7% of the total bile acids were in deconjugated form. The patient responded to tetracycline therapy but the diarrhoea recurred. A ¹⁴C-glycocholate breath test, which is a non-invasive indirect test of bacterial overgrowth in the small bowel, was negative during this attack.

This patient had a considerable quantity of free bile acids in the small bowel, a situation strongly suggesting bacterial overgrowth. The patient responded dramatically to tetracycline but the response may have been fortuitous

since the condition of diabetic diarrhoea is one of spontaneous remission and relapse. A further attack was not associated with bacterial colonisation, as assessed by a ¹⁴C-glycocholate breath test; yet the patient again responded to tetracycline. This test has not been reported to give false-negative results in the contaminated-small-bowel syndrome.¹

In conclusion, although there are many causes of diabetic diarrhoea in the diabetic, our results² suggest that cholestyramine may be more appropriately used in prophylaxis between attacks of the diarrhoea, when the pool size is larger than normal, rather than in the diarrhoea stage, when the patients have small pool sizes.

A MOLLOY
GERALD TOMKIN

Metabolic Unit,
Adelaide Hospital,
Dublin 8

¹ Thaysen, E H, *Clinics in Gastroenterology*, 1977, **6**, 227.

² Molloy, A, and Tomkin, G H, *British Medical Journal*, 1978, **2**, 1462.

Shortening hospital stay for psychiatric care

SIR,—Professor S R Hirsch and others (17 February, p 442) described brief hospital stay for psychiatric patients. I note that he did not include relapse rate.

The records of schizophrenic patients admitted to Claybury Hospital in 1960 and 1961 were checked by me. In the subsequent 10 years the chances of readmission within six months of any admission were greater if they stayed in the hospital less than six weeks.

ROBERT J DOIG

Cane Hill Hospital,
Coulsdon, Surrey CR3 3YL

Epilepsy and learning

SIR,—The letter from Dr C R Haines (31 March, p 893) highlights the situation in which many school doctors find themselves where epilepsy is concerned. This association has urged in our reply to the Warnock Report that the problems presented by the trend towards confidentiality be overcome because the otherwise valuable role of the school doctor is hampered when information passes only between consultants and the general practitioner.

We have, therefore, endorsed any scheme whereby the specialist in community medicine (child health) would co-ordinate the flow of information between hospital, GPs, and the school doctors. We would hope that parents could be persuaded to give permission for dissemination of information in this way, and that each local education authority would promote such a scheme.

This association believes that a well-informed school medical officer may be a more appropriate person to hold the assessment files for children with special needs as envisaged by Warnock than the head teacher. In any event,

the school doctor should have access to these records as of right. We would hope that such an arrangement would provide teachers with the sort of practical help they need in meeting the special—and changeable—needs of children with epilepsy.

ANDREW GORDON CRAIG

Wokingham, Berks RG11 3AY

Schizophrenia-like psychosis after treatment with beta-blockers

SIR,—The cases reported by Drs J Steinhert and C R Pugh (24 March, p 790) of schizophrenic-like psychosis in patients treated with beta-blocking agents were particularly interesting, for although these drugs are widely used in cardiology they are being used increasingly for their peripheral effects. It is noteworthy that in the cases reported the onset of psychotic symptoms followed increase of dosage.

The authors make the point that it is uncertain whether beta-blockers have a central action, and this question has been asked ever since the drugs were discovered. Three possible modes of action can be envisaged. (1) By penetrating brain tissue these drugs may interrupt the flow of information channelled through β -adrenergic mechanisms. (2) They may have a direct action on sensitive neuronal networks independent of a specific beta-blocking property. (3) The possibility exists that a peripheral effect may be transmitted via neural or humoral channels, or both, to the central nervous system, becoming manifest in psychic and behavioural change.

There is evidence particularly from work on animals that central adrenergic systems exist which are involved in functional activities related to adjustment of awareness and arousal, learning processes, and regulation of muscle tone. There is also evidence that adrenergic receptors of the beta type exist in postsynaptic membranes, which are normally activated by adrenergic substances, but inactivated and made unresponsive by beta-blockers. Noradrenaline is released by and taken up by adrenergic terminals and because of its postsynaptic effects serves as an information carrier. Dahlström and Fuxe, by demonstrating the existence of monoamine-containing neurones in the central nervous system in mammals, have paved the way for the discovery of catecholamine-containing cell bodies, or "nuclei," which give rise to descending and ascending catecholaminergic fibres. While there is an extreme degree of divergence in these noradrenergic systems, they include in their territory a huge number of cells. Certain portions of these systems seem to be involved in the control of the level of vigilance, which is in keeping with the anatomical structure of the locus ceruleus, which has relatively few cells capable of establishing contact with numerous cells in the forebrain and neocortex. Electric stimulation of this area in cats induces electroencephalographic arousal, accompanied by dilatation of the pupil, contractions of the nictitating membrane, a rise in blood pressure, and increase followed by decrease in the heart rate.

While data thus far available do not yet permit the exact site and mode of action by which beta-blockers exert their influence on the central nervous system to be identified, it is interesting to note the work of Atsmon *et al.*,¹ who treated a psychotic woman with porphyria in Tel Aviv with large doses of propranolol for her hypertension. The treatment produced

Bile salt pool size and composition in the patient and a control (mean ($\pm$ SE of mean)) of recently diagnosed diabetic patients without complications

Glycine:taurine ratio	Trihydroxy: dihydroxy ratio	Fasting pool size (mmol)	Free bile acids (% of total)	Faecal bile acids (mmol/24 h)
3.3 (2.5 $\pm$ 0.4)	1.00 (1.25 $\pm$ 0.1)	5.544 (6.672 $\pm$ 0.389)	22.7 (none detected)	2.225 (0.900 $\pm$ 0.180)

a remission of her psychosis, which reappeared when the drug was stopped. From this followed a trial in 13 cases of acute psychoses of varying aetiology, from which he and his team concluded that the symptoms of psychoses are attributable to hyperactivity of the beta-adrenergic system in the brain. There have been attempts at treatment with beta-blockers by other research teams, which have produced spectacular results in some hands² and dubiety so far as schizophrenic illness is concerned in others.³ Here one cannot rule out, in using such high doses, the possibility of a membrane-stabilising effect; but the doses used by Steinhert and Pugh⁴ were much lower.

M KEITH THOMPSON

Croydon, Surrey CR0 7HL

¹ Atsmon, A, *et al*, *Psychiatry, Neurology, Neurochirurgia*, 1971, **74**, 251.

² Yorkston, N J, *et al*, *British Medical Journal*, 1974, **4**, 633.

³ Schwarz, D, and Martin, J, *Nervenarzt*, 1973, **44**, 648.

⁴ Ungerstedt, U, *Acta Physiologica Scandinavica*, 1971, suppl, p 367.

Back pain—what can we offer?

SIR,—Your leading article (17 March, p 706) rightly stresses the need to recognise the predominance of “non-specific” back pain in the day-to-day experience of most doctors who deal with patients complaining of backache.

May I take issue with your statement that the diagnosis of sacroiliac strain is pathologically unfounded? In a series of 116 patients suffering from chronic or recurrent backache 82 (71%) had so-called non-specific sacroiliac pain.¹ I assumed that the lesion in these cases was a strain of one of the sacroiliac ligaments or a lesion of a ligamentous attachment to the periosteum. The treatment was the same as is widely used for “tennis elbow”—that is, local injection of a mixture of triamcinolone acetonide and xylocaine. Good results were achieved in 42 patients (51%), fair results in 23 patients (28%), and bad results in 17 patients (21%).

The method is based on the principle stated in your leading article: “The way forward should come from greater accuracy in identifying the lesion causing pain in the individual patient.”

I H J BOURNE

Back Pain Clinic,
Oldchurch Hospital,
Romford, Essex

¹ Bourne, I H J, *Practitioner*, May 1979.

Prevention and violence

SIR,—Your leading article (31 March, p 839) on prevention and violence indicated that prevention of child abuse, as suggested by Ounsted *et al*,¹ is impractical if it is to involve the families thought to be “at risk” in the possibility of individual or group therapy.

With help from the Park Hospital for Children, Oxford, a simple management plan for prevention of child abuse in general practice² was developed at Didcot Health Centre. Further work led to group therapy³ for mothers and children for families at risk. The work has emphasised the need for a routine psychosocial history to be taken at the antenatal clinic by the health visitor working in conjunction with the family doctor and community midwife. The benefit from this approach is appreciated by both patients and

primary care team and it is found to be very practical

KEITH BESWICK

Didcot Health Centre,
Didcot, Oxon OX11 7JH

¹ Ounsted, C, Oppenheimer, R, and Lindsay, J, in *Concerning Child Abuse*, ed A White Franklin, p 30. Edinburgh, Churchill Livingstone, 1975.

² Beswick, K, Lynch, M, and Roberts, J, *British Medical Journal*, 1976, **2**, 800.

³ Roberts, J, *et al*, *Practitioner*, 1977, **219**, 111.

Laboratory management in Europe

SIR,—Dr A G Marshall, (17 March, p 735) was either misinformed or misinterpreted the information proffered. The interpretation put on the word “pathology” would have been different to that commonly applied in the English-speaking world.

Dr Marshall says, “The Clinical Laboratory Service of the NHS has traditionally been the responsibility of medically qualified consultant pathologists or in certain circumstances a scientific officer of equivalent standing,” and he quotes a DHSS circular¹ in support of this. That circular makes it clear that within what we loosely call pathology there are several distinct disciplines each requiring the support of a department and each department requiring a head, who may be a consultant or a non-medical scientist of equivalent standing (the wording of the circular is slightly but significantly different from Dr Marshall’s). One of those disciplines is called clinical chemistry (or chemical pathology in England).

Reference to the most recently published comprehensive work² on the staffing of clinical chemistry departments shows the following facts about countries among those visited by Dr Marshall. In The Netherlands there are 153 qualified clinical chemists registered by the Koninklijke Nederlandse Chemische Vereniging on the recommendation of the Commission of the NV voor Klinische Chemie. Their primary qualifications are in chemistry, biochemistry, or pharmacy. They usually possess in addition a PhD. Successful completion of specialist studies gives them the title of “doctorandus.” Qualified clinical chemists serve 95% of the hospital beds for their specialty and are in complete charge of their departments. In France the practitioners of clinical chemistry are graduates in medicine or pharmacy (apparently in about equal numbers) having postgraduate qualifications awarded by university faculties. In university hospitals the laboratory directors must be doctors of medicine or pharmacists and are generally professors of biochemistry in the faculty of medicine or pharmacy. In Poland the laboratory network is, apparently, managed by the “administering authorities.” Doctors are the specialists in diagnostics—trained consulting officers for the clinicians—while pharmacists are the clinical analysts. Full specialist training for both classes takes a minimum of five years of postgraduate study.

Clearly there is little on which to base comparisons of the individual specialties in Europe, let alone of pathology as a whole. We do not agree with Dr Marshall that “the management of pathology laboratories in the EEC countries and in Poland seems to be much as it was in Great Britain before the Zuckerman Report was published.” We do agree that claims by technical staff to take over management from doctors are not apparent on the Continent, and suggest that administrators have a hand in laboratory management only in

Poland. We wish to emphasise that an important part is played by non-medical graduates as directors in clinical chemistry laboratories both in the UK and the Republic of Ireland as well as in The Netherlands, Belgium, and France.

We believe that in clinical chemistry, as in medical physics, microbiology, and cytogenetics, the science graduate has as much to offer in his own way as has the medical graduate and that, where his postgraduate training is as protracted (evidenced, for instance, by the attainment of membership of the Royal College of Pathologists) as that of the medical graduate, he is on equal terms with him when applying for the post of head of department.

P SEWELL
C E WILDE

Area Department of Clinical Chemistry,
Royal Infirmary,
Doncaster DN2 5LT

¹ Department of Health and Social Security, *Health Service Circular (Interim Series)* 16. London, DHSS, April 1974.

² Rubin, M, and Lous, P, *Education and Training for Clinical Chemistry*. Lancaster, International Federation of Clinical Chemistry (MTP Press), 1977.

Difficulties in diagnosing meningococcal meningitis

SIR,—Dr L G Evans-Jones and Dr Anthony Bryceson (31 March, p 892) would be unwise to place too much faith on the usefulness of counterimmunoelectrophoresis in diagnosing difficult cases of meningococcal meningitis, particularly when antibiotics have already been given. No doubt this technique is valuable where the organisms concerned belong to group A or C, but unfortunately the capsular polysaccharide of group B meningococci is only weakly immunogenic. In countries such as Britain and France where group B strains predominate studies so far have failed to demonstrate any advantage of counterimmunoelectrophoresis over conventional bacteriology, either in partially treated cases¹ or in untreated ones.²

B MANDAL

Regional Department of
Infectious Diseases,
Monsall Hospital,
Manchester M10 8WR, and
University of Manchester

¹ Mandal, B K, *Scandinavian Journal of Infectious Diseases*, 1976, **8**, 185.

² Ghanassia, J-P, *et al*, *Scandinavian Journal of Infectious Diseases*, 1977, **9**, 313.

Vetting and doctoring

SIR,—Your *medical expert* (31 March, p 885), answering a question about a child who persisted in pulling out his hair, advised that “he should be thoroughly *vetted* by a paediatrician.”

The verb “to vet,” meaning to submit an animal to examination, seems to date from 1891, and shortly after to have acquired a transferred application to man. The verb “to doctor,” meaning to tamper with or adulterate, seems to date from 1774. How has it come about that a word associated particularly with our noble profession, but also with the highest intellectual capacity—“one skilled in any branch of knowledge,” “learned divine,” “one who has attained to the highest degree” of a university—has entered ordinary speech as a verb solely in a pejorative sense?

I mean no disrespect for our sister profes-