been slowly inserted, expelling the air gradually. When the time came for removal it was fitting the meatus closely and removal exerted considerable negative pressure. Perhaps "the champagne cork syndrome" would be a suitable name for the injury.

D McCracken

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Direct translation

SIR,—In your leading article entitled "Beyond Calais" (11 September, p 606) you state that direct translation is often impossible and different nations often claim the same syndrome for their own compatriots. You give as an example hyperthyroidism, which is known in German as "Glutzaugenkrankheit." I have not met with this designation in my long years of medical practice. On the contrary the designation "Basedow-Erkrankung" is used by us, because C A von Basedow was a German doctor and had worked in Merseburg (1799-1854). Therefore we speak also of the "Merseburg triad"—namely, exophthalmos, struma, tachycardia.

H-D PACHE

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Oculo-mucocutaneous reactions to β -adrenoceptor antagonists

SIR,—Dr R G Finch (16 October, p 946) questions my statement (31 July, p 289) that "a validated case of oculo-mucocutaneous syndrome associated with practolol treatment has not yet been reported with any other beta-blocker," and quotes two supporting references.

No one denies that skin problems or eye symptoms may develop in patients receiving treatment with beta-blockers other than practolol.¹ However, proof of a "true-bill" oculo-mucocutaneous syndrome² similar to that associated with practolol has not been validated, so far as I am aware, in any patient on oxprenolol, or propranolol, at the time of writing.

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¹ Petrie, J C, *et al*, *Postgraduate Medical Journal*, 1976, **52** (suppl 4), 63.

² Wright, P, *British Medical Journal*, 1975, **1**, 595.

Misuse of tubular elasticated bandages

SIR,—I read with interest Mr C V Ruckley's condemnation of the increasing use of untapered tubular elasticated bandages for everything from dressings to fractures (16 October, p 940).

This summer I injured my left little finger playing cricket, and subsequent radiography showed a fracture of the terminal phalanx. I was immediately expertly cared for by a colleague who applied a tubular elasticated bandage to hold a dressing in place. In spite of keeping my hand up to help reduce swelling an intense throbbing pain developed over the next three hours, and I could feel the dressing becoming tighter and tighter on my little

finger. Great relief was obtained by removing the tubular elasticated bandage and re-bandaging using the left ring finger as a splint.

Perhaps the use of tubular elasticated bandages with their inherent property of radial compression in the immediate management of finger injuries should be questioned and investigated further.

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In vitro lymphocyte reactivity during pregnancy

SIR,—Many in vitro studies on lymphocyte reactivity during pregnancy have been reported in your journal.¹⁻⁴ There is still some controversy about the part played by maternal serum blocking factors, because conflicting results have been obtained when lymphocytes were cultured in the presence or absence of autologous sera. We would like to report that even thoroughly washed lymphocytes have demonstrable serum proteins on their surfaces. It is possible that these adsorbed surface proteins, if they contain blocking factors, could modify in vitro lymphocyte reactivity in the absence of additional autologous sera.

Lymphocytes were obtained from defibrinated venous blood of pregnant and non-pregnant women as previously described.⁵ Crossed immunoelectrophoresis⁶ using an LKB Multiphor system was performed on: (1) freshly isolated lymphocytes; (2) lymphocytes which had been kept overnight in autologous serum at 37°C, room temperature, and 4°C; and (3) lymphocytes which had been kept in liquid nitrogen in a DMSO/autologous serum mixture. The cells were washed three times and six times before immunoelectrophoresis. The first dimension was performed with 20 microlitres of a 10⁷/ml concentration of lymphocytes for 35 minutes at 8-10 V/cm. Following this, viability of the cells was checked by removing the cells from the wells and staining with trypan blue. The second dimension was run overnight at 2 V/cm against 1% anti-whole human serum incorporated in the gel.

Precipitin arcs could be seen in all cases but were particularly numerous with lymphocytes which had been kept in autologous sera at 37°C, room temperature, 4°C, and in liquid nitrogen. Serum proteins were present in substantial quantities after three washes, which is the usual number employed in most experimental procedures, and traces were still demonstrable after six washes. This occurred with pregnant and nonpregnant lymphocytes. Most lymphocytes (average of 76%) were alive after the first dimension electrophoresis, as judged by trypan blue exclusion. This high viability count, together with the gradual disappearance of serum proteins with increasing number of washes, indicate that these proteins were from the lymphocyte surface rather than liberated from disrupted cells.

Inhibitory factors in pregnancy serum appear to be effective in very low concentrations⁷ so a small amount bound to the lymphocyte surface could be sufficient to alter its in vitro reactivity. It has also been suggested that the immunosuppressive activity of pregnancy serum globulins acts upon the earliest events of lymphocyte response at the time of antigen or mitogen recognition, possibly by competition for receptor sites,^{8,9} so the presence of these globulins on the

lymphocyte surface at the beginning of culture could bring about a depressed reactivity. Thus it would seem that serum blocking factors cannot entirely be excluded even in those experiments where lymphocytes were cultured without autologous sera, and the conflicting results reported could be influenced by the amount of serum proteins left on the lymphocyte surface.

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¹ Curzon, P, *et al*, *British Medical Journal*, 1972, **4**, 49.

² Finn, R, *et al*, *British Medical Journal*, 1972, **3**, 150.

³ Walker, J S, *et al*, *British Medical Journal*, 1972, **3**, 469.

⁴ St Hill, C A, *et al*, *British Medical Journal*, 1973, **3**, 513.

⁵ Loke, Y W, *et al*, *American Journal of Obstetrics and Gynecology*, 1975, **122**, 561.

⁶ Weeke, B, *Scandinavian Journal of Immunology*, 1973, **2**, suppl 1, 47.

⁷ Gatti, R A, *et al*, *Clinical and Experimental Immunology*, 1973, **13**, 427.

⁸ Cooperband, S R, *et al*, *Transplantation Proceedings*, 1969, **1**, 516.

⁹ Yachnin, S, *Journal of Immunology*, 1972, **108**, 845.

Intravenous and aerosol salbutamol

SIR,—Drs M R Hetzel and T J H Clark (16 October, p 919), comparing intravenous and aerosol salbutamol, showed that aerosol salbutamol had a longer bronchodilatory effect. They suggest that this discrepancy may be due to the slow removal of salbutamol from the bronchial mucosa or its inhibition of mediator release. This difference may also be due to the differing metabolism of salbutamol when administered via these routes.

Studies by Evans *et al*¹ on the metabolism of salbutamol showed that salbutamol is conjugated in the liver and that this metabolite had negligible beta-adrenoreceptor stimulant activity. Following intravenous salbutamol 27% of the drug excreted in the urine over 24 h had been metabolised. However, when salbutamol was introduced directly into the lungs through a bronchoscope most of the dose in the plasma and urine was present as free salbutamol, suggesting that it is not metabolised in the lung. Their study also showed a more rapid urinary excretion rate for intravenous salbutamol, with 50% dose excretion by four h compared with only 25% dose excretion by four h for aerosol salbutamol. The longer bronchodilatory effect of aerosol salbutamol therefore reflects the higher proportion of active drug in the lungs and its slow removal from the lungs.

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¹ Evans, M E, *et al*, *Xenobiotica*, 1973, **3**, 113.

Can hepatitis B be transmitted sexually?

SIR,—If your expert seriously considers sexual contact to be an example of "non-parenteral" infection (28 August, p 517) he must surely be preoccupied with "unnatural practices." The opposite of "parenteral" is more concisely expressed as "enteral" than by the clumsy and ambiguous term "non-parenteral."^{1,2} Perhaps your expert was really thinking of inapparent parenteral transmission, for which, of course,

everyday life as well as sexual activity provides many opportunities via breaches in skin and mucous membranes.

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¹ Grist, N R, *Lancet*, 1974, **1**, 935.

² Grist, N R, *Lancet*, 1976, **1**, 205.

*Our expert writes: "Professor Grist is, of course, correct in pointing out that the term 'parenteral' in the strictest sense means introduction via any route other than the digestive tract. It is, however, in common usage restricted to the subcutaneous, intramuscular, and intravenous routes; hence the opposite becomes 'non-parenteral.' However, in a recent series of patients with acute hepatitis B studied in London homosexual contact seemed to be the most common source of exposure. In these instances perhaps the term 'enteral' would have been appropriate."—Ed, *BMJ*.

Propranolol absorption in Crohn's disease and coeliac disease

SIR,—We were interested to read of the findings of Dr R E Schneider and others (2 October, p 794) that propranolol was absorbed better in Crohn's disease at 1-6 h after ingestion and in treated coeliacs at $\frac{1}{2}$ h after ingestion than in healthy volunteers, though the significance of their observations was not discussed. In 1959 Hogben *et al*¹ postulated the presence of a layer of hydrogen ions (acid microclimate) on the luminal surface of the proximal jejunum to explain the unexpectedly enhanced absorption of certain drugs which were also weak acids. Thus the absorption of substances with a low pKa will be facilitated by the presence of a jejunal acid microclimate. This microclimate has been proposed as a means of facilitating the non-ionic passive absorption of folic acid,² 50% of which is present as neutral species at pH 3.5. We have shown that the acid microclimate is present in the normal human jejunum.³ Also further work has demonstrated a defective microclimate in Crohn's disease⁴ and in untreated coeliac disease,⁵ two diseases often associated with folic acid deficiency. Conversely, the absorption of drugs with a high pKa will be facilitated by a loss of the acid microclimate and it has been shown⁶ that quinine (pKa 8.4) is better absorbed in "partial villous atrophy" than in normals. The pKa of propranolol is also high (9.45), which would explain its enhanced absorption in Crohn's disease. The near-normal absorption of propranolol in treated coeliacs is consistent with the recovery of the acid microclimate seen in coeliacs on a gluten-free diet.⁵ However, the better absorption of propranolol at $\frac{1}{2}$ h in treated coeliacs compared with the controls indicated that the acid microclimate in these patients had not fully recovered. Therefore it would have been useful to have some details of the jejunal histology in these treated coeliacs. Also it would be of interest to know the absorption of propranolol in untreated coeliacs, which we suspect would be enhanced.

Further evidence for the role of the acid microclimate in explaining these results is provided by the relatively low serum levels seen in the controls after a relatively large oral dose of propranolol (40 mg), indicating that

propranolol absorption in normal subjects is not facilitated easily. Also the absorption of propranolol in the controls was maximal at 2 h after ingestion, which suggests that propranolol absorption occurs more distally than in the proximal jejunum, since the microclimate becomes progressively less acid towards the distal jejunum and ileum.³

Finally, the finding of two groups of patients with Crohn's disease with respect to propranolol absorption is consistent with our own findings that there are two groups of such patients with respect to proximal jejunal acid microclimate—a higher acidity and a lower acidity group—both significantly less acid than controls.⁴

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¹ Hogben, C, *et al*, *Journal of Pharmacology and Experimental Therapeutics*, 1959, **125**, 275.

² Blair, J A, and Matty, A, *Clinics in Gastroenterology*, 1974, **3**, 183.

³ Lucas, M L, *et al*, *Biochemical Society Transactions*, 1976, **4**, 154.

⁴ Cooper, B T, *et al*. Submitted for publication.

⁵ Lucas, M L, *et al*. Submitted for publication.

⁶ Matilla, M J, Jussila, J, and Takki, S, *Arzneimittel-Forschung*, 1973, **23**, 583.

Sedatives and driving

SIR,—Parliamentary concern with the hazards of driving a motor vehicle extend now to proposals to lower the legal limit for blood alcohol while driving and to make compulsory the wearing of seat belts. There appears to be little concern about the number of motorists whose state of alertness and quality of judgment are impaired by medication.

If exacting standards are to be applied to the drinker of alcohol, then surely these same standards should be applied to the consumers of sedatives, anxiolytics, antidepressants, and antihistamines if not, indeed, a few other drugs also. I endeavour to advise my patients not to drive a car if my prescription is likely to interfere with their cerebration, but I, and most doctors, know that this advice is not heeded.

Is it possible to establish that patients taking these drugs do indeed have more accidents than others? Should our profession take a firmer line on the subject? The police appear not to have pursued this cause of accidents and will shortly lose the opportunity to analyse a blood sample when the new breathalysers are introduced.

JOHN PLUMB

Abergavenny, Gwent

Detection of paraquat in urine

SIR,—Paraquat can be readily detected in urine by reducing it to a blue radical ion with sodium dithionite under alkaline conditions. In a previous letter (3 January, p 42) the need for a simple ward test for the early detection of paraquat was emphasised and a suitable procedure was described. This test has now

been simplified even further by formulating the reagents in capsule form. Sodium hydroxide is replaced as the alkaline agent by a mixture of sodium bicarbonate and pH 9 buffer powder. The buffer powder is incorporated to ensure that an alkaline pH is achieved, since experiment showed that for some acidic urines sodium bicarbonate alone did not suffice. For convenience the following quantities of the reagents are thoroughly mixed and packed into 1-g gelatin capsules (gauge 0): sodium dithionite, 10 g; pH 9 buffer powder (EIL, Chertsey, Surrey), 6 g; sodium bicarbonate, 25 g.

The test is performed by breaking open the capsule, tipping the contents into 10 ml of urine, and shaking gently until dissolved. A green or blue colour is indicative of paraquat and by preparing aqueous standard solutions of paraquat the test may be made semi-quantitative. The capsules are stored at room temperature in a screw-capped container and remain viable for at least six months.

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White coat

SIR,—For your article "New kinds of doctors" (9 October, p 862) why choose a GP who wears a white coat? He says, "We should help our students to become doctors of a quite different kind from their teachers," but they all wear this me-doctor, you-patient uniform to satisfy their egos. Most GPs, I suggest, would consider it idiotic to wear a "protecting" garment.

DAVID VICARY

Eye,
Suffolk

Not cricket

SIR,—To describe the greatest cricketer the world has ever known as "notorious" (23 October, p 991) passes all understanding—even when he is so described by a Scot.

J P SPARKS

The Sanatorium,
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The hospitals we need

SIR,—I was extremely interested to read Dr A L de Silva's letter (23 October, p 1015). He is asking a question which I had prepared in a more easily measurable field—namely, within the constraints under which we work, are our patterns of practice, and particularly hospital practice, geared to give doctors working in the service the best scope for their expertise and skills? Also are these factors geared to giving the best service to patients within the same constraints? The parallel question is, within the constraints of the NHS, to which so many of us rightly object, is there not room for a little market research with possible benefits all round, to patients, to the profession, and to the taxpayer?

I am suggesting elsewhere, and Dr de Silva has beaten me to the draw, that one field where alternative patterns of practice might be