for great feasts but did not breed in sufficient numbers to be eaten frequently. Fish were the major protein source and were plentiful. Birds and sometimes the native rat were snared to make a useful addition to the diet.

From these sources the Maori diet was adequate, probably just adequate, in protein; but there was no generous source of carbohydrates. The climate is too cold for coconut palms. Kumara, the Polynesian sweet potato, grew only in the northern half of North Island and is not a prolific vegetable. The staple item in the diet—as is stressed by all the eighteenth-century European visitors, both English and French—was fern root, the rhizome of the common bracken fern. When dug up, baked, and pounded, this could be chewed to yield some starch, a meagre result from much hard work. Thus the Maori remained lean and his genetic hyperuricaemia was controlled.

The white visitors and early settlers did what they thought was a kindness. They gave the Maori a better and easier food supply. Potatoes, wheat, and sugar were the downfall of the Maori race. With copious sources of carbohydrate, the Maoris got fat and with obesity came diabetes, gout, and cardiovascular disease. The worst results came from good intentions. I have not mentioned alcohol because it entered the picture only at a later stage; the Maori was slow to develop a liking for alcohol. Beer may make a significant contribution to Maori obesity today, but that was not so in the early days.

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Pressure on the tracheal mucosa from cuffed tubes

SIR,—The study by Drs J M Leigh and J P Maynard (5 May, p 1173) is of considerable help in the difficult choice of a tube for prolonged tracheal intubation. However, we would like to inject a note of caution into the use of low-pressure cuffed tubes in spontaneously breathing patients.

A recent patient in our intensive therapy unit died as a result of massive aspiration of gastric contents past the properly inflated, low-pressure cuff of an endotracheal tube. The patient was breathing spontaneously in the sitting position while being weaned from mechanical ventilation. Despite intensive resuscitation, cyanosis became intense and death rapidly ensued. Necropsy confirmed extensive pulmonary aspiration and did not demonstrate any abnormality of oesophagus or trachea.

If the pharynx fills with fluid, with the patient sitting up, a hydrostatic pressure of 10–12 mm Hg may be exerted from above on the cuff of the endotracheal tube. Preliminary laboratory studies on the low-pressure cuffed tubes used in our unit confirm that, with a cuff pressure of 15 mm Hg, there is a leak of fluid past the cuff along folds in its wall. The effect is accentuated by a negative pressure below the cuff, such as may occur during spontaneous ventilation. If a patient were to take a deep inspiration, as after a coughing fit, or if the lumen of the tube were partially obstructed, greater negative pressures may be generated and the effect further exaggerated.

We hope to pursue our study of this phenomenon, and offer this report not as an argument against the use of "floppy" cuffed

tubes but simply to warn against too great a reliance on the protection against aspiration offered by such tubes.

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Driving after anaesthetics

SIR,—Recently Dr T W Ogg (31 March, p 891) drew attention to the fact that no published work seems to exist on the question of when it is safe to drive after general anaesthesia.

We have been investigating this problem for some time in relation to the administration of nitrous oxide in dental surgeries as an analgesic and sedative agent (relative analgesia or inhalation sedation). With the help of dental student volunteers we have tested driving ability following 15 minutes' inhalation of air, 50% N₂O/O₂, and 70% N₂O/O₂ mixtures, using a driving simulator and a film based on the British Department of Transport driving test. A slight but quantified impairment in driving ability was found up to 30 minutes following inhalation of the N₂O/O₂ mixtures. Under our experimental conditions it would appear that caution in driving should be exercised after a short exposure to nitrous oxide. Full details of the experiment have been submitted for publication to the *South African Medical Journal*.

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Another view of the Kalash

SIR,—We were interested to read Dr Alison Leach's account in Personal View (10 March, p 679) of her experiences with the Kalash tribe of the North-west Frontier. As we spent over two months living with these people a short while ago we thought that we ought to bring a few points to her attention.

Firstly, the suggestion that these people are descendants of Alexander the Great is at best a myth and something quoted by the Government guide books rather than by the people themselves, though we admit that one does occasionally see the unusual sight of a blue-eyed Pakistani in these parts.

We were slightly perplexed about where she discovered the names of the Kalash villages that she visited (Rumbhur, Bumboret, and Birir, for example) as these are not villages but the names of the three valleys in which these people can be found. In each of them are upwards of five small hamlets stretched over at least 10 miles of rugged, mountainous countryside.

Delighted we were when we read her observation that infected skin lesions were so common, but it would be worth pointing out that this is almost certainly due to the people's tradition that they should never wash except on the rare occasions that custom permits it.

From our point of view iodine-deficient goitre was the most prevalent condition, affecting some 65% of women and 35% of men. The area shows one of the highest levels of endemic goitre in the world and has been extensively studied in the past.

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Dalziel's disease

SIR,—The correct spelling of Sir Kennedy's surname is Dalziel¹; he was born at Penpont near Dumfries in 1881 (31 March, p 876). Several senior colleagues have attempted to identify the pathologists who were at the Western Infirmary, Glasgow, 66 years ago. Almost certainly all the reports were scrutinised by Sir Robert Muir. However, in the first edition of his *Textbook of Pathology*² Muir made no reference to the pioneering work on chronic interstitial enteritis which Sir Kennedy Dalziel presented in Glasgow and Brighton in the spring³ and summer of 1913.

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¹ Dalziel, T K, *British Medical Journal*, 1913, **11**, 1068.

² Muir, R, *Textbook of Pathology*. London, Arnold, 1925.

³ Dalziel, T K, *Glasgow Medical Journal*, 1914, **82**, 346.

"The Edinburgh School of Surgery after Lister"

SIR,—I read the *BMJ* of 28 April with particular pleasure—firstly, on account of Dr Dale Falconer's fascinating article "Best-dressed casualties" (p 1130) and, secondly, for Professor Hugh Dudley's generous review of my book *The Edinburgh School of Surgery after Lister* (p 1138). I accept his criticism that there is no index. An index was discussed but I felt, as there was very little overlap of subject matter, that the headings of the chapters in the contents list were a sufficient guide. However, I was wrong.

As regards references to source material, a fair copy of all this voluminous material is being prepared. This will be available in the library of the Royal College of Surgeons of Edinburgh for anyone interested, possibly someone in the future taking Professor Dudley's hint and writing a modern history of the college that is long overdue.

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Disinfection with glutaraldehyde

SIR,—Your correspondents Dr G A J Ayliffe and others (14 April, p 1019) suggest that the products which have become available since the expiry of the patent on the original 2% activated alkaline glutaraldehyde solution are likely to be corrosive to certain metals and to damage other materials.

We have recently completed laboratory investigations on the effects of six aqueous 2% glutaraldehyde preparations on 25 different metals, combinations of metals, and other

materials. Our results indicate that all products do have deleterious effects on some of the materials tested. No product was free from corrosive effect and, indeed, the preparations marketed by the original patent holder did not perform better in this respect than products from other manufacturers. An objective scoring system was used to assess the extent of corrosion produced and our results indicate that, with the exception of a preactivated acidic product which consistently performed badly, the overall performance of the various formulations was similar.

The six products analysed were all found to be of different compositions. All (except the acidic preparation referred to above) required activation by the addition of a solution or powder. These activating agents were found to contain a variety of buffer systems, corrosion inhibitors, detergents, and colouring agents.

Manufacturers' claims of stability throughout working life require careful investigation because many of the assay methods in common use are non-specific to glutaraldehyde monomer and do not discriminate against aldehyde groups in polymer formed by degradation of glutaraldehyde in alkaline solution. We have succeeded in suitably modifying one method,¹ which we believe to be specific to the available monomer and free of interference from other aldehydes. Our results confirm that under optimal conditions the manufacturers' claims of stability are justified; the effect of adverse conditions of use on solution stability are being investigated.

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¹ Hajdu, J. and Friedrich, P. *Analytical Biochemistry*, 1975, **65**, 273.

History of an improvement

SIR,—I believe that the following example of Hutter's Law ("improvement" means "deterioration") is worth recording. I must stress, however, that this hospital is not the one involved, and that all concerned were most helpful and co-operative.

About 18 months ago odd holes appeared in the operating theatre wall, with a row of clips leading from them. I was informed that this had to do with prevention of pollution by anaesthetic gases. Some weeks later I was told, en passant, that boxes of the necessary apparatus had arrived, and that this had been connected up in my absence. I was rather worried that no anaesthetist had been involved, and even more worried after inspecting the equipment as it appeared to be rather suspect. After requesting its dismantling, I obtained the assistance of the hospital engineer and the firm that designed it. Several of the items were seen to be of the incorrect specification, so that its use would have been dangerous. Replacements were ordered and arrangements made to have them installed by the designers, hospital engineer, and an anaesthetist. At the end of 12 months, having heard of no progress, I contacted the engineer, who contacted the firm. At the end of a further three months the apparatus arrived, and after some correspon-

dence so did the firm's expert, together with the hospital engineer. When all was nearly completed a test was made to ensure that everything would work according to plan, as at a previous hospital the fresh gases had been evacuated from the Boyle's reservoir bag before reaching the patient.

To our surprise, the reservoir bag in the test circuit deflated fairly completely and the gauge in use showed that a vacuum was causing this to happen, although the system was a simple passive one through the exterior wall. This was due to a Venturi effect when the wind was in a certain direction, and it would have prevented the patient from receiving a fresh inflow of anaesthetic gases. The system is therefore not yet in use, and I am thankful that I used the services of the experts and did not rely on my own knowledge (or lack of knowledge) of complicated physics.

Sheffield

Obstetrics in Brecon

SIR,—We read with interest Mr David Shapland's article on the medical services in South Powys (5 May, p 1199), including his comment on the consultant paediatric service that Brecon Hospital receives. We would like to point out that Dr Shapland is no longer a member of this practice and that the comments made on this service in no way reflect the opinions of the remaining partners.

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Aftermath of an accident

SIR,—I enjoyed reading Dr Dale Falconer's humane and witty account of what was undoubtedly a terrifying experience. Something very similar happened to my family and car. Again, but for seat belts and the NHS the result could have been tragic.

Nevertheless, one word of caution to all full-time NHS consultants. Do not rush out and hire a replacement car so that you can continue to fulfil your emergency commitments, or, like me, you may find yourself responsible for finding £1200 while the insurance company unwillingly drags itself to settle many months later.

As a full-time anaesthetist working entirely without junior staff and being first on call 96-144 hours per month, I was hurt when Fife Health Board told me that I am not an "essential car user" and advised me to use a taxi. As the father of four growing children I was wounded when the bank manager advised me that my large overdraft had run my current account into very large bank charges and that neither these nor the interest on the overdraft are recoverable from the insurance company. As a member of the BMA I was furious that Fife Health Board should be immune from prosecution in the event of harm befalling a patient owing to the late arrival of the anaesthetist, and yet should limit its contribution to the provision of his car to less than the cost of a full set of new tyres each year.

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Changes in death certificates

SIR,—Like other colleagues, I have just received details of the changes in death certificates. That such a certificate should be a simple statement of fact no one, not least myself, would contest, bearing in mind its medicolegal functions.

However, the new format requires what appears to be tantamount to a full medical history. Example No 12 of the notes for guidance gives the following details: "Cardiac failure 4 months, hypertension 2 years, chronic renal failure 2 years, diabetes mellitus 20 years, and generalised metastases for scirrhus carcinoma of the breast (excised) 10 years. Contrariwise, example No 1 gives only myocardial infarction 1 day. Logic surely demands an antecedent cause for this, so why the omissions?

The information asked for would seem to be for purely academic reasons. If this be so, then it should attract a suitable fee for the time and trouble it will take to assemble the facts, especially in general practice. If a fee is unacceptable, then I suggest that the BMA takes immediate steps to see that the certificate is either simplified or withdrawn.

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*.*The BMA was not consulted about the changes in the notes of guidance on completing medical certificates of cause of death. The BMA has recently written to the Government commenting on its failure to consult and raising several points about the changes.—ED, *BMJ*.

The new consultant contract

SIR,—It is understandable that academics with honorary appointments should feel concern about the financial implications of the proposed consultant contract. However, it is the case that such consultants more frequently obtain recognition by the merit award system. I doubt if full-time clinicians have any objection to the tendency of the merit award system to recognise academic consultants, but it would be unfortunate if the opposition of academics prevented the implementation of a contract which would recognise the work load of those who are too busy to participate in academic pursuits.

It is obvious that there is a risk of the consultant community's being split once again, as it was in the past over the issue of part-time versus full-time practice. Those who pay us and determine our conditions will always be ready to exploit our weaknesses and make the most of our internal disputes. Must we lose out again because we are divided?

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SIR,—Mr D E Bolt, chairman of the negotiating subcommittee of the CCHMS in his 1978-9 annual report¹ asks the profession to remember, when the time finally comes to vote for or against the proposed new contract, the advantages which go beyond an acceptable pricing by the Review Body. The new contract is seen by Mr Bolt as the means by which consultants can strengthen their base in negotiations with the Government through lessening