fessions should be aware of this risk and that patients with joint replacements should be added to the list of those requiring prophylactic antibiotic therapy before dental treatment.

JOHN D LANGDON

Queen Mary's Hospital,
Roehampton

- ¹ Okell, C C, and Elliott, S D, *Lancet*, 1935, 2, 869.
² Rubin, R, Salvati, E A, and Lewis, R, *Oral Surgery*, 1976, 41, 18.

SIR,—We support the general conclusions in your leading article on late infection of hip prostheses (23 July, p 213) but suggest that they might be extended to include prostheses at all sites, especially the knee.

In a recent review¹ of 100 hinge arthroplasties of the knee we found that infection could occur up to five years after apparently successful surgery. The infections arose spontaneously and could not be ascribed to factors such as steroid treatment or post-operative wound sepsis. One patient, five years after receiving a Walldius prosthesis, developed infection of it with *Salmonella typhimurium*, which was also grown on blood culture. She had no symptoms otherwise of salmonella infection.²

There is, to our knowledge, no evidence analogous to that in endocarditis that prostheses can be infected with organisms from the mouth. It does seem appropriate, however, to consider whether the presence of a joint prosthesis may be an indication for antibiotic cover during an incidental bacterial infection and also prophylactically before performing any procedure likely to result in bacteraemia.

MICHAEL WEBLEY

Westminster Hospital,
London SW1

MICHAEL L SNAITH

University College Hospital,
London WC1

- ¹ Webley, M, *et al.* In preparation.
² Rae, S, *et al.*, *Rheumatology and Rehabilitation*. In press.

Comparison of treatment with fast neutrons and photons

SIR,—Professor H A S van den Brenk's comparison (16 July, p 188) of our trial of neutrons against photons (25 June, p 1642) with his own trial of hyperbaric oxygen as an adjuvant to radiotherapy is most interesting. We agree with his suggestion that controlled trials of different fractionation schemes with conventional radiotherapy should be undertaken. It is impossible to assess properly the value of a new form of treatment when we are not certain of the best way of giving the conventional treatment.

We would like, however, to correct his statement that 14% of our neutron-treated patients incurred radionecrosis of the normal tissue. This was the total incidence of complications (10 patients), but in only five were the tissues necrosed. In two of these patients the eyes were surrounded by tumour and received the full dose. In two others the cervical cord and in one the larynx received unusually high doses because of the physical characteristics of the beam and the sites of the tumours. In the remaining five patients the complications were due to fibrosis which in most other parts of the body would probably have caused no symptoms but in the region of

the oropharynx and larynx caused aspiration and stridor. Such complications would be less frequent in the treatment of smaller tumours and if more penetrating beams of neutrons were available.

MARY CATTERALL
D K BEWLEY

MRC Cyclotron Unit,
Hammersmith Hospital,
London W12

I SUTHERLAND

MRC Statistical Research and
Services Unit,
London WC1

Evolution of poliovirus since introduction of attenuated vaccine

SIR,—We need to know how many cases of poliomyelitis are caused by vaccine-derived poliovirus and how many by wild. We need to know whether paralysis is a more or less frequent sequel to invasion of the central nervous system by poliovirus than it was before the introduction of vaccination with attenuated virus. Unfortunately Dr Yvonne Cossart (25 June, p 1621) has not clarified a very difficult subject.

Your accompanying leading article (p 1617) states that "there are fewer cases of paralysis in those with neurological disease." Dr Cossart compares a paralytic rate of 66% in 1957 with less than 50% in 1965-72. It is extremely difficult to compare rates; before 1960 cases were mainly reported on clinical grounds, but with the greatly reduced number of poliomyelitis cases since 1963 routine virological investigations are now made not only on all suspected cases but on other patients as well. Miller *et al*¹ say that the "periods 1962-4 and 1965-8 cannot be compared, owing to the more intensive search for possible cases in the latter period." The high rate of 96% for virus isolation from non-paralytic cases in 1965-8 was because poliomyelitis was diagnosed after the isolation of poliovirus from many cases previously given diagnoses other than poliomyelitis. Before 1960 many cases of aseptic meningitis and encephalitis without paralysis were not included in the poliomyelitis figures. It may be true that the paralytic rate is lower, but Dr Cossart does not present the evidence.

Dr Cossart says that there has been a noticeable decline in the overall number and proportion of wild strains isolated from patients with neurological disease. Her figures

do not correspond with those published by staff from the same laboratory for the same period 1965-8 or with the provisional figures from the same laboratory for 1969-72 (Table I). Because virus is not isolated from all cases non-paralytic cases are over-represented (see above) in virus strains used for marker tests (Table I). Moreover, Dr Cossart tested only 116 of 178 typed strains. Those selected did not constitute a constant proportion for either type or period—for example, for Type 2 16 out of 27 for 1965-8 and all 18 for 1969-72. For paralytic cases only, both vaccine associated and epidemic cases, Miller *et al* found that 64% of strains were wild, whereas Dr Cossart, including patients with neurological disease, found that only 31% were wild (Table II). The two results from the same material cannot be compared because Dr Cossart does not define her categories. Similarly for 1969-72 it is not clear whether all the paralytic cases (Table I) or none were tested (Table II). Before any conclusions can be drawn the Public Health Laboratory Service must provide an authoritative review of all poliomyelitis cases and poliovirus isolations from 1965 to 1976.

H V WYATT

Department of Biology,
University of Bradford,
Bradford, W Yorks

¹ Miller, D L, Reid, D, and Diamond, J R, *Public Health London*, 1970, 84, 265.

² Public Health Laboratory Services, *Communicable Disease Reports 1969-72*. London, HMSO.

Running away from accidents

SIR,—It is reported that one of Her Majesty's Secretaries of State, medically qualified, would run away from a road accident casualty. Such a comment or act is surely deplorable but, worse, can only discourage the staff of road accident emergency care schemes, who are so obviously of great value in minimising morbidity and mortality at very low costs indeed. If politicians can only run from people in trouble let them not speak their shame. May our Association reaffirm its intent not to leave casualties unattended.

First aid is rarely taught in schools and medical schools but can be learnt from the three voluntary societies by any doctor who feels he is insufficiently skilled. Our Government should be deciding how to encourage the population towards good health, how they

TABLE I—Cases of poliomyelitis in England and Wales 1965-72

Source	1965-8			1969-72		
	Paralytic	Non-paralytic	Total	Paralytic	Non-paralytic	Total
Miller <i>et al</i> ¹	91	78	169	—	—	—
Miller <i>et al</i> ¹	56	64	120	—	—	—
Cossart	51	84	135	11	32	43
PHLS ²	—	—	—	39	73	112

TABLE II—Results of genetic marker tests on strains of poliovirus from England and Wales

	No of strains				% Wild
	Total	Vaccine-like	Intermediate	Wild	
1965-8					
Miller <i>et al</i> ¹ : paralytic cases	42	10	5	27	64
Cossart: "neurological disease"	84	35	23	26	31
1969-72					
Cossart: "neurological disease"	32	22	7	3	

might discourage unhealthy habits, and how rapidly they should legislate for greater road safety. I shall continue to offer whatever help I can whenever I come up with a road accident, cherishing the thought that this is normal for road users and being grateful for a medical and military training which probably enhanced my value to the casualty.

P A LAWRENCE

Oxford

Immersion and drowning in children

SIR,—We read with interest your leading article on this subject (16 July, p 146). We would, however, like to comment on the use of airway rewarming in the management of hypothermia, as, although this may be easily administered at the site of the accident, it has important limitations.

Lloyd, in his original article in 1972,¹ stated that quantities of heat may be delivered in this way amounting to 30% of heat production of a hypothermic patient, but later concluded on theoretical grounds that the absolute heat gain may not be very great. Experiments performed in our laboratory confirm this by showing, for example, that the quantity of heat taken up via the respiratory tract may well be less than 10% of metabolic heat production in the presence of shivering thermogenesis during hypothermia. This is not surprising considering that respiratory heat transfer is limited by the fact that the maximum temperature tolerated at the mouth is 50°C and that the inspired air cannot obviously be greater than 100% humidified. We have observed that even in the presence of moderate hypothermia (core temp 28-29°C) the expired air temperature using the Reviva¹ is well above that of the core, and this, together with expired air being fully saturated, means that the net heat uptake is minimal.

Central rewarming via the airway, therefore, has gross limitations as a rewarming device but may certainly play a part in the prevention of further heat loss from a hypothermic victim by insulating the respiratory tract under such conditions.

C D AULD
J N NORMAN

University Department of
Surgery,
Aberdeen

¹ Lloyd, E L, *et al*, *Scottish Medical Journal*, 1972, 17, 83.

Entry to medicine

SIR,—Like Charlotte Wright (6 August, p 388) I have just completed my first year at medical school. However, I differ from her as, in retrospect, I have enjoyed the past year. I have found the lectures and practicals (with their clinical importance shown where relevant) interesting, although I must admit that evening study of anatomy, physiology, and biochemistry hasn't always been quite as enjoyable, especially as the termly course exams approach. One must, however, appreciate that all this is necessary, and can indeed be very interesting, before one can learn about "caring"—as Miss Wright calls it.

I fully intend to make the most of and indeed thoroughly enjoy the second year of the pre-clinical course before embarking on the clinical work which will occupy the remainder of my career as I believe that before learning

the art of "caring" (or indeed medicine itself) one must be proficient in the basic sciences of medicine—that is, anatomy, physiology, pharmacology, biochemistry, etc. Enjoying and understanding the preclinical course is not only the responsibility of the staff at the medical school but of the medical students themselves.

ANNE-MARIE FEELEY
Medical student

Preston, Lancs

SIR,—It is sad to see Charlotte Wright (6 August, p 388) condemning medical education at Newcastle for being "about everything but caring" and dismissing a knowledge of biochemistry with an air of boredom.

Some hold that biochemistry holds the key to all human disease, while many admit that its study seems laborious and at times tedious. Nevertheless, to omit it from basic training would adversely influence the later management of some of one's patients.

Compassion is a human virtue which the Newcastle curriculum did its best to cultivate in my experience there four years ago. However, compassion without knowledge cannot be in the patient's interest.

B A BELL

National Hospital for Nervous
Diseases,
Queen Square,
London WC1

Pinning down the diagnosis in breast cancer

SIR,—In your leading article (30 July, p 282) you describe the pros and cons of excisional biopsy and needle biopsy in the diagnosis of a mass in the breast, and in general give your support to the needling procedures. Diagnosis by cytology, with its "about 60% accuracy," you virtually (and rightly) dismiss.

You say that "needle biopsy will be increasingly used in the diagnosis of breast disease" and that the various techniques "should centre on reducing error to a minimum." Yet the means of achieving the greatest possible accuracy, some 99.8% by our own figures, are already available in the excisional biopsy which you criticise. You give reasons for rejecting this and for preferring the needling procedures, and these reasons merit scrutiny. With one exception they appear to me either irrelevant or invalid.

The desired object, all are agreed, is confirmation or rejection of the presence of cancer with the greatest degree of accuracy. Excisional biopsy, you say, is "costly of theatre time"—in the circumstances is this really relevant? It "disturbs the routine of busy laboratories"—it is not, I submit, a "disturbance" at all; it is one of the obligations built into the very fabric and function of histopathological diagnosis wherever it is practised. "Putting the pathologist under pressure"—one really wonders, Sir, what your opinion of pathologists is; would you proscribe certain operations because they put the surgeon under pressure? The facility is "far from uniformly available"—if a laboratory is staffed and equipped to report on needle biopsies it will almost certainly be able to provide a frozen-section service; competence in the one technique is scarcely ever divorced from competence in the other. The extent to which an excisional biopsy may "make a definitive

operation technically less easy" I do not know, but I can say that I have never yet heard it mentioned by surgeon colleagues as a factor, significant or insignificant.

The one reason that might justify needling is the one about which, unexpectedly, you have some doubt—namely, lessening the psychological trauma to the patient of recovery from the anaesthetic minus a breast. To even the well-advised patient this must be highly traumatic, and none would minimise the size of the problem. Needle biopsy, you believe, can help a great deal and you illustrate your attitude well when you say that "surgeons in breast clinics are all familiar with the smile of relief from the patient when, convinced she has a rapidly advancing tumour, she is shown the contents of a syringe." To be sure, many patients when "shown the contents of a syringe" will be relieved and many thereafter will have no further trouble, but if this practice is continued the day will surely come when some patient returns with the "cyst" refilled, and this time the "cyst" will be solid. How many patients thus relieved are to be weighed against this one whose diagnosis was missed because the cyst, with carcinoma in its wall, was aspirated and not excised? To many the answer, when a more accurate technique is available, must be "none." At any time one false-positive or one false-negative diagnosis is one too many of either, not one too many per year or one too many per cent but absolutely.

The answer to the problem may lie in the better psychological preparation of the patient for the possibility that mastectomy may immediately follow tylectomy, but it does seem strange that, in cancer diagnosis, a less accurate procedure should be preferred to a greater. In the opinion of some these needling procedures as applied to disease in the breast appear to be verging on the meddlesome.

W WALLACE PARK

University Department of
Pathology,
Ninewells Hospital and Medical
School
Dundee

Which arm squeezes the bag?

SIR,—I have been interested in all kinds of wind instruments for over 50 years, but never before have I seen a right-armed bagpiper (30 July, p 332). Had I been asked, I would have said no such thing existed.

H G MAGILL

Exeter

*.*Dr Magill underestimates the versatility of the Scots.—Ed, *BMJ*.

Photo-onycholysis caused by tetracyclines

SIR,—Dr H J N Bethell's case report (9 July, p 96) prompts me to remark that, notwithstanding his statement that photo-onycholysis "has not been reported from the UK," this drug reaction is well known to British dermatologists, most of whom have probably seen at least one or two cases.

In the exceptional sunshine of last summer I saw it twice due to tetracycline in the low dosage of 250 mg twice daily used for acne. In neither case was it accompanied by significant phototoxicity of the skin. One woman complained of very severe pain under the free ends of the nails at the onset of the attack "like