Our trial has shown (after 200 patients) a decrease in infarct size (approximately one-third) and a reduction in the numbers developing complete infarction in those patients given intravenous beta-blockers within 12 hours of the onset of pain.¹ The treated group needed less diuretics both in hospital and on discharge, suggesting clinical as well as biochemical and electrophysiological benefit.

It is important, as Professor Rose points out, not to dismiss (with small trials) therapy which might reduce morbidity and perhaps mortality by, say, 20% as being clinically insignificant in this common condition.

DAVID RAMSDALE
PETER SLEIGHT
SALIM YUSUF

University Cardiac Department,
John Radcliffe Hospital,
Oxford OX3 9DU

¹Yusuf S, et al. *Lancet* (In press).

Cardiovascular mortality and water quality

SIR,—The British Regional Heart Study (24 May, p 1243) again confirms a negative correlation between water hardness and cardiovascular mortality and states that there is no accepted physiological explanation.

The hardness of water is its power to form insoluble soaps. Soaps lower surface tension and this property is shared by bile salts. Cholestyramine forms an insoluble complex with bile acids and by thus preventing their normal enterohepatic recycling eventually depletes them and their precursor, cholesterol. Calcium has also been shown to have a weak hypocholesterolaemic effect.¹ A previous study showed hypercholesterolaemia to be more common in areas with a soft water supply.²

It was noted that the consumption of fresh fruit and green vegetables in Scotland was less than half that in the south-east of England.³ If water hardness or calcium is indeed a protective factor, then additional protection in the hard-water area would be gained from calcium precipitated from bicarbonates into boiled vegetables (A N Howard, personal communication).

The negative correlation between water hardness and cardiovascular mortality could therefore be due to an inhibitory effect on surface-tension-lowering agents in the alimentary tract, affecting the serum lipids and, in some yet unknown way, protecting the myocardium.

G H B MARTIN

Nuneaton, Warwicks CV11 5TN

¹ Yacowitz H, Fleischman AI, Bierenbaum ML. *Br Med J* 1965;i:1352-4.

² Stitt FW, Clayton DG, Crawford MD. *Lancet* 1973;ii:122-6.

³ Armstrong BK, Mann JJ, Adelstein AM, Eskin F. *J Chronic Dis* 1975;28:455-69.

Progestogens and cardiovascular reactions

SIR,—We find it difficult to follow the reasoning of Dr T W Meade and his colleagues (10 May, p 1157) in extracting apparently meaningful results from reports to the Committee on Safety of Medicines, biased as they are by gross under-reporting and selective influences. Having failed to find any association between progestogen content of contraceptive pills and venous thrombosis, and a

negative influence on pulmonary embolism with pills containing norethisterone, they proceed to conclude that "there is a case for minimising the dose of progestogen to reduce the chances of thromboembolism."

Thromboembolism is a term applied to venous thrombosis and pulmonary embolism, which are probably related to coagulability changes which we know are not produced by small doses of progestogens.¹⁻⁴ Surely it is the relationship to cerebrovascular accidents and to ischaemic heart disease, both implying arterial damage, perhaps in association with progestogen-induced alterations in cholesterol and lipoprotein levels, which is the reason for minimising the dose of progestogen in oral contraceptives?

D F HAWKINS
M G ELDER

Institute of Obstetrics and Gynaecology,
Hammersmith Hospital,
London W12 0HS

¹ Poller L, Thomson J M, Tabiowo A, Priest CM. *Br Med J* 1969;i:554-6.

² Elder MG, Hakim CA, Hawkins DF. *J Obstet Gynaecol Br Commun* 1971;78:277-9.

³ Poller L, Thomson JM, Thomas PW. *Br Med J* 1972;iv:391-3.

⁴ Hawkins DF. In: Pescetto G, DeCecco L, eds. *Atti del 1° seminario internazionale sui problemi medici e sociali del controllo della fecondità*. Genova. Turin: Minerva Medica, 1973:201-9.

High-pressure water jet injury

SIR,—With reference to the case report by Mr J L M de Beaux on the effects of high-pressure water jets (14 June, p 1417), it should be pointed out that industry has not been unaware of the potential problem.

We, together with Mr Jim Hawkes of Offshore Services in Great Yarmouth, are currently analysing the experimental data relating to the prolonged application of a small (0.1 cm) water or oil jet on soft tissue. Not unexpectedly these show that when such a force was closely applied to the skin this resulted in explosive disintegration of sub-jacent connective tissue and damage to peritumour. Preliminary experiments suggest that the traumatic effect may be reduced by interposing loosely textured clothing.

IAN M CALDER
DEREK BOUSTRED

Department of Morbid Anatomy,
London Hospital Medical College,
London E1 1BB

Salivary duct calculi

SIR,—It was with interest that I read the article on submandibular calculi by Mr K Nigel Bullock (7 June, p 1357). That same day I was referred a similar case of a 9-year-old boy with a two-week history of left-sided intermittent submandibular swelling. A calculus was clearly seen at the orifice of the duct and was removed without difficulty under local anaesthesia by means of a small incision and crocodile forceps.

I think that submandibular calculi are possibly more common in children than the article would lead us to believe, for the symptoms and signs may more easily be assigned to adenitis resulting from a tonsil or tooth infection when perhaps a more careful examination would reveal a stone.

I J MACKENZIE

University Department of Otolaryngology,
Ninewells Hospital,
Dundee DD2 1UD

Acumen in Transkei

SIR,—While pleased that Mr J D Lawrence (19 January, p 162) enjoyed his sojourn in Transkei at one of our hospitals, I would like to have the opportunity of correcting several of his statements.

Transkei is a country of 2.6 million, not 1.75 million as stated in the article. There are 25 former mission hospitals and five government hospitals run by the Transkei Department of Health. Mr Lawrence's statement that "even basic medical investigations are unavailable" is not true. All hospitals have x-ray facilities; some have a laboratory service and specimens can be sent to Umtata or to laboratories in South Africa. Even at the hospital in which Mr Lawrence worked there was a "microbiology technician," as he himself says. Two hospitals have full blood transfusion facilities on which the others can draw.

Most importantly, however, the author writes that he was "granted full doctor status" for his student elective in Transkei. A medical student wishing to be attached to a Transkeian Government hospital applies for registration as such with the Transkei Medical Council. His application is accompanied by a declaration from the medical superintendent which includes the statement "I will give him or ensure that he is given by another duly registered medical practitioner the guidance to which he is entitled as a medical student in order to assist me in rendering health care in this hospital and district." We do not grant students full doctor status any more than do British hospitals which employ student locums.

We do, however, thank Mr Lawrence for his work in Transkei and wish him well. Maybe he will even return to Transkei when the GMC has granted him "full doctor status" in the United Kingdom.

HECTOR S LIVINGSTON

Department of Health,
Umtata, Transkei

Chief Medical Officer

Spoon feeding in postgraduate training?

SIR,—I feel compelled to take issue with Dr D V Bateman (14 June, p 1455) over the question of "spoon feeding" in postgraduate training.

The theoretical and practical knowledge required of today's practitioner is far in excess of that of 30 years ago. Furthermore, today's doctor in training cannot obtain his or her postgraduate credentials through the post by sending a nominal sum of money to the appropriate Royal College, but must sit a series of examinations, success in which is vital for future career prospects. The appalling failure rates in so many suggest that the traditional apprenticeship method of acquiring knowledge is inadequate in this day and age. Learning by "osmosis" is a protracted and inefficient business, and a more formal training programme with a planned curriculum must surely be preferable. Also, today's medical educationalists believe that methods of teaching have progressed beyond those "formal didactic lectures."

Dr Bateman includes in his communication his resentment of the greater off-duty time the present-day doctor is permitted. No doubt there were those who complained when we stopped sending 7-year-olds up chimneys.

MICHAEL CURTIS

Cramlington, Northumberland NE23 3HE