conceded, a multifactorial disease then high salt intake may play a significant permissive role without necessarily requiring that hypertensives consume more than normotensives. This high salt intake may allow the clinical expression of a number of other genetic and environmental factors.

A parallel situation is seen in the epidemiology of diabetes. Australian Aborigines have a high prevalence of diabetes yet there is no difference in the calorie intake between diabetics (15% of the population) and non-diabetics¹. Similar findings have been derived from various other ethnic groups. Yet no one would deny that calorie intake is the single most important environmental factor involved in the expression of insulin-dependent diabetes: increasing calorie intake results in the emergence of diabetes in populations, while a reduced calorie intake represents the single best treatment modality for established diabetes. Parenthetically, hypertension is also seen in more rather than less urbanised Aborigines with a greater age-related increment in the former.² Aborigines are known to use large amounts of salt but regrettably no sodium consumption or excretion data was obtained during our studies.

For the present, and particularly in the light of other studies, the data of Beevers and colleagues do not exclude salt as being a significant (even major) cause of hypertension in the community.

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¹ Wise PH, Edwards FM, Thomas TW, Elliott RB, Hatcher L, Craig R. *Med J Aust* 1970;ii:1001-6.
² Edwards FM, Wise PH, Thomas DW, Murchland JB, Craig RJ. *Aust NZ J Med* 1976;6:197-205.

Comparison of continuous and intermittent papaveretum after cholecystectomy

SIR,—Dr J A Catling and his colleagues (16 August, p 478) have given an important warning that heavy, continuous intravenous dosage of papaveretum in the postoperative period may cause respiratory complications—that is, change in respiratory rate and depth accompanied by transient apnoea. In that they refer to our work with morphine we would like to comment on their results.

Firstly, because postoperative pain does decline in intensity, and because narcotic effects may be cumulative if supply exceeds elimination, it is desirable to reduce the dose progressively over three days. Our intravenous titration dose (that is, the dose required to relieve pain in the conscious patient) was given continuously in the first two 12-hour periods and thereafter three-quarters, half, and a quarter in the subsequent 12-hour periods. Secondly, the effectiveness of these relatively small doses in relieving pain (and with an improvement in mechanical respiratory function) rests on having saturated morphine receptors which modulate pain with the titration dose: we have subsequently found that if the titration dose is omitted analgesia by the continuous intravenous route is much less effective. By contrast, in the Northwick Park study continuous infusion after a loading dose probably resulted in an effect on other pathways which control respiration.

Both our work and that of Dr Catling and his co-workers emphasise our ignorance of the

sleep patterns of the postoperative patient and the effect on these of narcotics. They also underline our ignorance of opioid kinetics in the postoperative patient. We hope to fill in some of these gaps in knowledge by our future work.

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Kidney biopsy

SIR,—The use of ultrasound for localisation of kidneys for biopsy was considered in one sentence in the article by Drs Richard McGonigle and Paul Sharpstone (23 February, p 547) and received no comment in the ensuing correspondence (12 April, p 1054; 24 May, p 1271; 26 July, p 306; 30 August, p 619).

The nephrologists in this hospital have experience of several hundred renal biopsies, initially having used blind techniques and later fluoroscopy after intravenous contrast. However, since June 1977 localisation of renal biopsy site has been made by ultrasound, using a Diasonograph 4200 machine; and the biopsies have been performed immediately in the ultrasound room without moving the patient. One hundred and ninety-four biopsies have been performed using this technique with only four failures—cases in which biopsy was also unsuccessful by other techniques.

The advantages of this method of localisation are that the biopsy site can be selected in longitudinal and transverse planes, and the depth of the kidney measured by electronic calipers; it is not dependent on renal function and can be performed in renal failure; and it is cheaper, quicker, and safer than fluoroscopy since it avoids the use of contrast and x-irradiation. There is no contraindication to the use of ultrasound.

We believe that the optimum technique for safe and successful renal biopsy is for the investigation to be performed in the ultrasound room under ultrasound control.

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SIR,—We have been following the correspondence on renal biopsy after the description of percutaneous renal biopsy by Drs Richard McGonigle and Paul Sharpstone (23 February, p 547).

We agree with the views expressed by Dr K F Fairley (26 July, p 306) that the lower pole of either kidney is the safest site for biopsy. However, in our experience puncture of the lower calix is the commonest cause of heavy free bleeding into the urine requiring blood transfusion, and we agree with Drs P M Bretland and B I Hoffbrand (30 August, p 619) that the kidney should be visualised under fluoroscopic control. We have recently used ultrasound to localise kidneys from patients in renal failure which could not be visualised fluoroscopically but find that it lacks the precision for accurate placement of the biopsy needle.

We have now performed 690 renal biopsies

under fluoroscopic control and in only eight (1.2%) was insufficient tissue obtained for histological diagnosis. In this series no kidney has been lost from any cause related to the renal biopsy. Thirty-two had significant bleeding, requiring more than 24 hours' bed rest; nine required a bladder washout for retained blood clot; and seven were transfused with an average of 2.3 units of blood. In those who had significant bleeding renal function at three weeks after the biopsy had not significantly changed. We believe that the high diagnostic yield is due to our practice of localising the kidney accurately, to the presence of a senior histology technician at every biopsy to confirm the adequacy of the specimen, and to performance of the biopsy by skilled, experienced operators.

In addition, we have performed renal biopsies in 53 patients with acute renal failure where we were able to localise the kidneys only with a plain x-ray film. In this group two patients lost a kidney because of persistent bleeding and in both of these patients the underlying diagnosis was a crescentic nephritis associated with a vasculitis.

We would emphasise from our considerable experience that making renal biopsy safe and diagnostically rewarding requires continued practice by a team of nephrologist, radiologist, histology technician, and pathologist.

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The National Blood Transfusion Service today

SIR,—Your leading article on the National Blood Transfusion Service (9 August, p 405) is timely. Since the NHS reorganisation of 1974, the National Blood Transfusion Service has lost central direction and become a distinctly patchy regional blood transfusion service. As a consequence of this policy, each regional centre provides the Blood Products Laboratory with a variable amount of plasma, depending on regional policy. The supply of factor VIII concentrate by the Blood Products Laboratory to regions is dependent on their haemophilic population, so that some regions are subsidising others. This obvious maldistribution of resources cannot go on. It will end in the drying up of supplies to the Blood Products Laboratory and force the country either to buy all its factor VIII from overseas or to use cryoprecipitate, which is much less satisfactory. This would indeed be a national disgrace.

The reorganisation of the NHS now proceeding is essentially devolution to a district health service, and applying this to the Blood Transfusion Service would cause further harm. The policy of "small is beautiful" can never apply to such a complex specialty as blood transfusion. The Blood Transfusion Service must be truly national, with central financing to cover blood products production in its entirety. This should be on a sufficient scale