Further, Chantler *et al*⁸ have shown that the copper wire on IUDs becomes rapidly coated with a surface deposit which greatly reduces the release rate of copper and the availability of copper ions.

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- ¹ Jacobson, L., and Westrom, L., *American Journal of Obstetrics and Gynecology*, 1969, **105**, 1088.
² Westrom, L., *American Journal of Obstetrics and Gynecology*, 1975, **121**, 707.
³ Westrom, L., Bengtsson, L. P., and Mardh, P., *Lancet*, 1976, **2**, 221.
⁴ Buckingham, M. S., *et al*, Paper to be read at the VIII World Congress of Gynaecology and Obstetrics, Mexico City, October, 1976.
⁵ Elstein, M., *Proceedings of the Royal Society of Medicine*, 1967, **60**, 397.
⁶ Tatum, H. J., *et al*, *Journal of the American Medical Association*, 1975, **231**, 711.
⁷ Johannisson, G., Karamustafa, A., and Brorson, J., *British Journal of Venereal Diseases*, 1976, **52**, 176.
⁸ Chantler, E. N., Critoph, F., and Elstein, M. In preparation.

Diagnosis of amyloidosis

SIR,—In a recent short report Mr P Nimoityn and his co-authors (31 July, p 284) report the detection of urinary amyloid in a patient with familial Mediterranean fever. At the conclusion of their comment they state that "the detection of urinary amyloid fibrils by electron microscopy is a practical and non-invasive alternative diagnostic method for patients suspected of having renal amyloidosis." They rightly point out that renal biopsy may be hazardous in patients with renal amyloidosis, but it is surely relevant that in the case they report amyloidosis had already been diagnosed by rectal biopsy.

Since the original report of Gafni and Sohar¹ advocating rectal biopsy as a means of diagnosing generalised amyloidosis there has been ample confirmatory evidence to support biopsy of the rectum as the best and usually the only site required to establish a tissue diagnosis. In contrast to renal or liver biopsy, rectal biopsy is a simple and painless procedure with little or no risk to the patient. In a detailed study of the distribution of amyloid at necropsy in a large number of patients with generalised amyloidosis secondary to the septic complications of paraplegia, rheumatoid arthritis, and tuberculosis²⁻³ it was shown that the accuracy of rectal biopsy is at least 90% and that the pattern of distribution of amyloid in the rectum can add useful information to the pattern found throughout the body and the likelihood and rate of renal involvement. In conjunction with Dr Arapakis⁴ rectal biopsy was used as the most appropriate method to estimate the incidence of amyloidosis in rheumatoid arthritis and was found to detect amyloid in a proportion of cases before significant proteinuria was present.

Over the past four years serial rectal biopsy has been used in this hospital both to establish initial diagnosis and to follow the natural history and judge the effect of possible therapeutic agents in a series of 25 patients attending an amyloid clinic. In none of these cases was it thought necessary to perform biopsy of other tissues for either the diagnosis or management of the disease. Apart from slight rectal bleeding in a few cases the patients have suffered no ill effects. Rectal biopsy at six-monthly intervals provides a permanent

histological background to a condition in which the clinical and biochemical findings can vary greatly.

While I admit that the detection of urinary amyloid fibrils is a non-invasive technique, it seems that it is possible only in the late stages of renal amyloidosis and it involves the expensive and not universally available technique of electron microscopy. Since there is ample evidence of both the efficacy and safety of rectal biopsy I would like to suggest that this tried, simple, cheap, reliable, and harmless method remains the histological "sheet anchor" for the diagnosis and management of this still fatal and little understood condition.

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- ¹ Gafni, J., and Sohar, E., *American Journal of Medical Sciences*, 1960, **240**, 332.
² Tribe, C. R., in *Modern Trends in Rheumatology*, p 121. London, Butterworths, 1966.
³ Tribe, C. R., and Silver, J. R., *Renal Failure in Paraplegia*, pp 54-90. London, Pitman Medical, 1969.
⁴ Arapakis, G., and Tribe, C. R., *Annals of the Rheumatic Diseases*, 1963, **22**, 256.

Diabetic ketoalkalosis

SIR,—We read with great interest the recent reports of diabetic ketoalkalosis by Drs K C Lim and C H Walsh (3 July, p 19) and Dr Elaine B Melrose and others (24 July, p 237), in which it was suggested that diabetic ketoalkalosis was due to severe vomiting or alkali ingestion. We wish to report a case of diabetic ketoalkalosis in which there was no history of alkali ingestion, no vomiting, and no hypokalaemia.

The 70-year-old patient, a long-standing diabetic capable of giving a good history, was admitted for stabilisation of her diabetes before amputation of her right leg for gangrene of the foot. The results of the biochemical investigations on admission were: blood glucose 26.4 mmol/l (476 mg/100 ml), pH 7.47, P_{CO_2} 5.6 kPa (42 mm Hg), standard bicarbonate 29.5 mmol (mEq)/l, base excess +6 mmol (mEq)/l. There were ketones ++ in the urine. Fourteen hours later, during which time she had received a total of 56 units of soluble insulin but no intravenous fluids, the blood glucose had fallen to 9.8 mmol/l (177 mg/100 ml), but she remained alkalotic, the blood pH being 7.51, P_{CO_2} 5.2 kPa (39 mm Hg), standard bicarbonate 31.5 mmol (mEq)/l, and base excess +7.5 mmol (mEq)/l. At this time, serum urea and electrolyte levels were normal, notably the potassium level, which was 3.6 mmol (mEq)/l.

The occurrence of ketoalkalosis in a diabetic in whom there was no clinical evidence for the condition emphasises the need already stressed by the previous authors for biochemical monitoring of the acid-base state before applying corrective measures.

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Ketamine hydrochloride: a potent analgesic

SIR,—The following case report demonstrates the powerful analgesic effect of subdissociative doses of ketamine hydrochloride.

A 59-year-old steel erector fell from scaffolding fracturing several ribs, which resulted in a flail chest. While clinically he could just about manage

with this embarrassment to respiration, it became necessary for him to undergo laparotomy for a carcinoma of the colon, which had been found while he was in hospital. The following day the patient, now with a transverse colostomy and a flail chest, was in respiratory failure, mainly owing to retention of bronchial secretions due to the severe pain of adequate coughing. His P_{CO_2} was 5.6 kPa (42 mm Hg), P_{O_2} 8 kPa (60 mm Hg), and base excess 9 mmol (mEq)/l.

It was felt that if effective coughing could be re-established it might be possible to manage the case without ventilation, which at the time would have been difficult to institute because of extreme pressure on intensive care beds. Further deterioration in the blood gases, which were frequently measured, would, of course, have been treated with intermittent pressure ventilation.

Ketamine hydrochloride, given in subdissociative dosage, is the only analgesic powerful enough to allay this degree of pain without causing respiratory depression. Accordingly ketamine 0.5 mg per kg was given intravenously. In less than two minutes the patient volunteered that he was pain-free for the first time since his fall. On request he gave a respectable cough, bringing up sputum. Simultaneous physiotherapy resulted in the clearing of secretions. This process was repeated three times daily for the next three days. The patient made good progress and never needed ventilation as he almost certainly would have done otherwise.

The psychotomimetic reaction or unpleasant dreams experienced when the full, dissociative dosage of ketamine is used (around 2 mg/kg intravenously) is not a problem at this dosage level.¹⁻⁵ Consequently fear of causing these reactions need not deter the clinician from using this valuable, safe, and powerful analgesic where appropriate.

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- ¹ Hyman, M. D., *Anesthesiology Review*, 1974, **1**, 17.
² Chodoff, P., and Stella, J. G., *Anesthesia and Analgesia—Current Research*, 1966, **45**, 527.
³ Corssen, G., *et al*, *Journal of Oral Surgery*, 1969, **27**, 627.
⁴ Slogoff, S., *et al*, *Anesthesia and Analgesia—Current Researches*, 1974, **53**, 354.
⁵ Liang, H. S., and Liang, H. G., *Anesthesia and Analgesia—Current Researches*, 1975, **54**, 312.

Security units for dangerous and difficult patients

SIR,—May I congratulate Dr J H Price on his thoughtful letter on security units (25 September, p 756)? As a forensic psychiatrist actively involved in the new developments I too am very worried about some of the ideas which are currently being aired. He is right; a static model of security based on notions of custody will do immeasurable harm to our psychiatric services in a number of ways. Not only will it bring a negativistic philosophy back into psychiatry but it could well convince a lot of hard-pressed general psychiatrists and nurses that mentally abnormal offenders and difficult patients are no longer their responsibility. "Oh, he's forensic, he should go to the security unit" could become the cry of the future. Indeed, such attitudes already exist and partly account for the increasing pressure on special hospitals.

Perhaps Dr Price will be encouraged to learn that at least one region is adopting a dynamic model rather along the lines he suggests, although we are concerned with NHS facilities and will not have formal links with prisons. In the South-east Thames Regional Health Authority we are not proposing to have a security unit; instead there

will be a multicentred special supervision service. One of the centres (probably at the postgraduate teaching hospital) will be a small inpatient unit giving a regional service for assessment of difficult patients, treatment of specially referred problems, consultation, teaching, and research. Each health area is joining the arrangements with a supervision service for its own patients providing both inpatient and outpatient facilities.

The Government has asked us not to concern ourselves with psychopaths, as the Butler Committee recommended prison developments for them. Our scheme will deal primarily with the mentally ill and it will provide flexible graded supervision all the way from maximum security to outpatient care in four tiers. Tier 1 exists already in the form of the special hospitals; we will provide tier 2 (the regional unit) and tiers 3 and 4 (the area arrangements). On 16 September we issued a publicity document "Secure but not Secured" setting out the proposal for the layman. I would be happy to let anyone have a copy; alternatively they could write to SETRHA at Randolph House, Wellesley Road, Croydon.

Finally, I would like to endorse the plea made by Dr Price for different regions to try different approaches to the problems confronting them. A uniform blueprint for the whole country is fine if it is the correct solution, but what if it is wrong? A variety of approaches introduced gradually will surely give us the best opportunity of maximising our experience. It will be interesting to see if the DHSS will approve the SETRHA scheme, which is distinctly different from other proposals they have already approved.

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Epidural analgesia in labour

SIR,—In 1970 a letter from this department¹ reported no effects from epidural analgesia on the rates of either caesarean section or combined forceps and ventouse deliveries during the years 1965-9. In the middle of 1969 20% of patients were receiving epidural analgesia in labour.

Since 1969 there has been an obvious change in the incidence of operative vaginal delivery and this can be readily seen in the accompanying figure. Ventouse-assisted deliveries account for less than 1% of cases in this unit.

During the last decade it can be seen that the forceps delivery rate increased sharply as the use of epidural analgesia changed from 20% to 40% of women. The only other policy change in the unit during these 10 years has been an increase in induced labour, but this has been a gradual change from 20.2% in 1966 to 39.2% in 1975.

The total forceps rate has fallen from 36% to 30% since 1970 and this is probably due to a better understanding of second-stage management when this form of analgesia is used. In 1974 35.0% of patients with epidurals had forceps deliveries and the total forceps rate for all patients was 28.5%. These would appear to be fairly typical figures for units using epidural analgesia as their main form of pain relief in labour.

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¹ Noble, A D, and de Vere, R D, *British Medical Journal*, 1970, 2, 296.

Thyrotoxic vomiting

SIR,—In addition to the seven cases reported by Dr D F Rosenthal and others (24 July, p 209) 13 other cases of this syndrome have been reported in your correspondence columns. Four patients had abnormal liver function tests and two of these had mild jaundice. Two others had associated hypercalcaemia. I report another example which was interesting.

A woman aged 35 had bilateral hilar lymphadenopathy and a negative Mantoux test in 1972. The infiltration had been present for some time because her serum electrophoresis was then normal. Her father had pulmonary tuberculosis and therefore she was considered to have sarcoidosis. Three years earlier she had had generalised arthralgia and probably had transient hyperthyroidism. A year ago she started to lose weight and had intermittent diarrhoea. Her symptoms worsened and she began to have vomiting attacks on 2 August 1976. Her serum thyroxine was then 164 nmol/l (12.3 µg/100 ml). She had hyperthyroidism and her serum thyroxine was 244 nmol/l (19 µg/100 ml) when I saw her for the first time in September. She therefore probably has sarcoid hyperthyroidism.¹

The unusual cases of this syndrome with liver involvement may have had undiagnosed sarcoidosis.

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¹ Karlsh, A J, and MacGregor, G A, *Lancet*, 1970, 2, 330.

Laxative effect of All-Bran

SIR,—We were surprised by your expert's insistence (12 June, p 1461; 24 July, p 236) that All-Bran is more effective than raw, unprocessed millers' bran. We know of no evidence to support this statement. We have carried out a controlled trial of All-Bran and uncooked millers' bran, given alternately and in equivalent amounts to 10 healthy subjects.¹ At the commonly given "dose" of 20 g per day raw bran of the kind used in the manufacture of All-Bran significantly increased dry stool weight and shortened intestinal transit time. All-Bran itself had no significant effect when given in the fibre-equivalent "dose" of 22 g per

day. There was, however, a trend in the same direction and doubtless a significant effect would have occurred if All-Bran had been given in larger amounts—a standard helping of this breakfast cereal is probably 30-40 g.

Nevertheless, our findings suggest that the cooking-malting process reduces the laxative effect of wheat bran and that, weight for weight, raw bran is more effective than bran breakfast cereals. In practice the latter may be easier to take in effective amounts because of their greater palatability.

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¹ Wyman, J B, et al, *American Journal of Clinical Nutrition*. In press.

Postoperative pain

SIR,—I very much enjoyed your leading article on this subject (18 September, p 664) but would suggest there was a notable omission as no mention was made of the use of long-acting local anaesthetics.

During my general surgical training I used locally instilled bupivacaine (0.5% plain) into herniorrhaphy wounds during closure with good relief of pain for up to 36 h. More recently I have been using a similar technique for certain orthopaedic operations with very gratifying results.¹ Our anaesthetic colleagues have also been using total lower limb blocks, administered under the anaesthetic for the operation, with good symptomatic pain relief for up to 24 h postoperatively.

The use of the "indwelling epidural cannula" for the relief of both post-thoracotomy and post-trauma chest pain is now also well established.

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¹ Dinley, J, and Dickson, R A, *Journal of Bone and Joint Surgery*, 1976, 58B, 356.

Oestrogens for menopausal flushing

SIR,—We are pleased that Mr E R Broadhurst (18th September, p 697) referred to our article¹ which questioned the rationale and efficacy of oestrogen therapy in menopausal flushing. We wonder if Professor A I Klopper would amplify several points mentioned in his original article (14 August, p 414) and in his subsequent letter (18 September, p 697)?

He says that "depending on which evidence you accept" the response of hot flushes to oestrogen "can be clearly distinguished from a placebo effect." We have been unable to find any double-blind cross-over studies which show that oestrogen is significantly better than placebo. Does Professor Klopper have any information that we have overlooked?

We do not agree that a flush count is an objective way of evaluating the effect of treatment. Hot flushes are subjective. However, there are associated objective components which include alterations in skin temperature and the other changes mentioned in our article.

Professor Klopper says that it is not a question of whether oestrogens should be