These observations do not detract from the interesting points made by Verbeelen and Fuss with more modern methods, especially the induction of hypercalcaemia on oestrogen withdrawal, as well as of hypocalcaemia on oestrogen administration. They merely indicate that the latter phenomenon is a perennial one.

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¹ Klotz, H P, and Barbier, P, *Annales de Biologie Clinique*, 1947, 1, 13.

² Klotz, H P, and Klotz-Valensi, R, *Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris*, 1947, 28-9, 857.

³ Justin-Besançon, L, et al, *Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris*, 1949, 1112, 451.

⁴ Mathieu, F, *Archives Internationales de Physiologie*, 1934, 38, 365.

A Copper 7 IUCD with no copper

SIR,—I was interested to read Drs Elspeth M Williamson and R Jane Berry's letter "Defects in copper winding of intrauterine devices" (5 May, p 1215) as the previous day I had removed one of these devices which had no copper on it at all. There was a small black speck attached to the lower end of the stem where the copper winding usually begins and a few more in the mucus surrounding it, but these were washed away by the nurse and are not available for analysis. This IUCD had been fitted by a colleague in the same clinic on 24 April 1974 and the patient, who had been abroad, had not returned for examination since six weeks after the device was fitted. She had no complaints but thought that it was time that she had a check-up. She was refitted with a new Copper 7.

It seems to me that this loss of copper was not due to any defect in winding but that it had been dissolved away during the length of time that it had remained in the uterus. The Gravigard is a small plastic device with 32 cm of copper wire 0.2 mm in diameter wound round its stem giving a surface area of 200 sq mm, its original weight being 95 mg.¹ This makes it 7-10 times as effective as a similar plastic device without copper.^{2,3} The increased contraceptive effect appears to be due to the presence of dissolved copper in the uterus. The initial rate of copper elution is 60 µg/day, which decreases to 12 µg by the end of the first year and to less than 10 µg daily during the second and third year.⁴ The amount of copper diffusion may be affected by the deposit of calcium on the device.⁵ Contraceptive effectiveness may therefore be diminished by loss of copper or by its being covered with calcium. Even so, the Copper 7 appears to remain effective for longer than the two years recommended by the manufacturer as the pregnancy rates continue to fall from 1.6 per 100 women in the first year of use to 0.8 in the fourth year (Searle Laboratories, personal communication); Zipper *et al*¹ found a similar fall from 2.3 to 0.9. Rates for expulsion and removal of the device for bleeding or pain were diminished after the first year.

Although changing of the Copper 7 is recommended after two years, it has been my experience that many of the problems following the first fitting recur after reinsertion of a device and it does not seem good clinical practice to remove and reinsert an IUCD as a routine when a patient has no complaints. However, in view of the findings of Sir

Williamson and Berry and my experience it would seem prudent to renew Copper 7s after about three years of use until more is known about the factors governing the length of their effectiveness in individual patients.

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¹ Zipper, J, *et al*, *Contraception*, 1976, 13, 8.

² Medel, M, *et al*, in *Proceedings of Family Planning Research Conference: A Multidisciplinary Approach*, ed A Goldsmith and R Snowdon, p 49. Amsterdam, Excerpta Medica, International Congress Series No 260, 1972.

³ Tauber, P F, *et al*, *IRCS Medical Science*, 1978, 6, 527.

⁴ Stewart, W C, *et al*, in *Analysis of Intrauterine Contraception*, ed F Hefnawi and S J Sigal, p 152. Amsterdam, North Holland, 1975.

⁵ Gosden, C, Ross, A, and Loudon, N, *British Medical Journal*, 1977, 1, 202.

Diagnostic sand

SIR,—The detailed study made of the accuracy of the diagnostic content of Hospital Activity Analysis by Drs A M George and Dr G B Maddocks (19 May, p 1322) confirms what many of us have thought for years—that is, that HAA is an impressive edifice built on diagnostic sand.

The fault lies with us, however, for the responsibility for accurate disease indexing must be a medical one. I do this personally on all discharges, but feel that perhaps the registrar is the doctor who might be held accountable for this exercise—surely this sort of responsibility is the origin of the title "registrar."

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Airways insufficiency and pituitary failure

SIR,—The letter by Dr P d'A Semple and others, "Pituitary suppression in chronic airways disease?" (19 May, p 1356), contains the interesting suggestion that raised intracranial pressure may account for their findings of depressed testosterone and raised prolactin levels. Dr R A Stockley and I have looked at a series of 16 patients with severe chronic bronchitis.¹

Eight patients, whose pituitary, thyroid, and adrenal hormone levels were measured either at rest, after exercise, or during sleep, all showed apparent abnormalities in various parameters. Two of these patients, together with a further eight patients also with severe bronchitis, had a combined pituitary function test.² We found that only one patient in this second group had an inadequate response. Although hypothalamohypophyseal damage does occur in these patients, we felt it unethical to measure cerebrospinal fluid pressure levels. Without these measurements it would seem premature to suggest that intracranial hypertension is the cause. Our data suggest that static testing is inadequate in assessing endocrine activity in patients with respiratory insufficiency and that dynamic testing is essential. Dr Semple's tests might have overestimated the problem in sick patients if sex-hormone-binding globulin has not been estimated. Underventilation of short duration did not appear to be a cause of pituitary dysfunction

when 50 patients maintained on artificial ventilation were assessed.³

Corroborative evidence that cerebrospinal fluid pressures are more important than generally recognised is provided by separate studies, which show that hypothalamohypophyseal damage may be associated with what is called "benign intracranial hypertension."⁴ Undoubtedly intracranial hypertension does occur with carbon dioxide retention, and papilloedema is well recognised,⁵ but its exact relationship to the endocrine disturbances remains hypothetical.

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¹ Barber, S G, and Stockley, R A, submitted for publication.

² Harsoulis, P, *et al*, *British Medical Journal*, 1973, 4, 326.

³ Barber, S G, *Acta endocrinologica*, 1979, 90, 211.

⁴ Barber, S G, and Garvan, N, submitted for publication.

⁵ Crofton, J, and Douglas, A, *Respiratory Diseases*, 2nd edn, p 371. Oxford, Blackwell Scientific Publications, 1975.

Contaminated hospital water supplies

SIR,—The reports (3 February, p 350) that hospital water supplies have been shown to be contaminated by a variety of bacteria, larvae, and other forms of microbial life should awaken control of infection teams to the possibility that the domestic water supply in hospitals may be a source of potentially pathogenic micro-organisms.

Examination of the water supply of our hospital was undertaken prior to the opening of a new sterile production unit in the pharmacy department, and revealed intermittent contamination by small or large numbers of Gram-negative bacilli, often between 10³ and 10⁵ colony forming units per ml. The predominant organisms were two types of *Pseudomonas* species, one of which was identified by the computer trials laboratory at the National Collection of Type Cultures as an atypical strain of *Pseudomonas pickettii*, while the other strain resisted precise identification, although it was confirmed as a pseudomonad able to grow at 42°C. Growth at 37°C required 48 hours' incubation.

Not only were the organisms present in the cold water, but the hot water system was also extensively colonised. At this time the hot water was maintained at only 42-3°C, owing to misinterpretation of the DHSS guidance¹ recommending that domestic hot water in most patient areas of general hospitals should be supplied at 50-60°C, whereas in the areas for geriatric, mentally ill, mentally handicapped, and paediatric patients it should be at only 43°C. This had been implemented some six months previously.

The source of the organisms in the water in our hospital can only be postulated. The local water authority produced figures to show that when we first detected the problem the mains supply to the hospital was wholesome, containing less than 10 organisms per ml after 24 hours' incubation at 37°C, and no coliforms or *Escherichia coli*. However, these incubation conditions would not have detected our strains, which required 48 hours for growth on nutrient agar at 37°C. Small numbers of pseudomonads may therefore have reached the hospital through the mains water, and have colonised the hot water system because the temperature was insufficient to kill bacteria, especially if thermophilic. We also postulated that the cold water may have been recontaminated from the hot water through mixer taps, thus continuing the cycle of events, although contamination may equally well have occurred in the opposite direction. Once the hot water temperature had been raised to 60°C, colonisation with *Pseudomonas* species disappeared within a matter of hours from cold and hot water systems alike. Samples examined

more recently have contained small numbers (less than 24 organisms per ml) of spore-bearing *Bacillus* species.

While we have no evidence that any patient became infected by pseudomonads of these species, it would be unwise to assume that they may not take on an opportunistic role in patients who are immunologically impaired. We would therefore recommend that control of infection teams are alive to this possibility, that hospital water is from time to time monitored microbiologically, and furthermore that domestic hot water in general hospitals is maintained at a temperature adequate to kill vegetative bacteria.

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¹ Department of Health and Social Security, *Hospital Services Engineer* No 30. London DHSS, 1976.

The wrong drug

SIR,—I read your leading article "The wrong drug" (12 May, p 1233) with interest. It seems to me that you left out the problem of drugs prescribed by hospital doctors at outpatient clinics and by general practitioners.

It has been my practice to have a look at the drugs I prescribe for my outpatients. Every time they come to see me I ask them and their relatives to bring the drug bottle. This has several advantages. The doctor gets an opportunity, firstly, to see whether the patient is getting the right drug or drugs and the right dosage and to find out what other drugs the patient is taking, as patients do receive treatment from more than one doctor for different ailments and the communication between doctors does break down; secondly, to see whether the patient is taking them as prescribed; thirdly, to discuss the side effects of the drugs with the patients and relatives and to point to which drug is causing what side effects (this is particularly useful when the patient is on more than one drug); fourthly, to be confronted by different types of drugs, which by their sheer number may have some sobering effect on the prescription habit; and, finally, to establish a better doctor-patient relationship by giving the patient the impression that he does care by checking the medicine he orders.

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Falciparum malaria despite chemoprophylaxis

SIR,—The letter from Dr S J Bentley continuing the discussion about partial suppression of falciparum malaria by chemoprophylaxis (19 May, p 1351) raises some important points concerning suitable prophylactic measures.

Having spent three and a half years in the Gambia, I fully endorse his statement that pyrimethamine in a dose of 25 mg weekly does not give adequate prophylactic cover. An increase of the dose to 25 mg every five days or 50 mg weekly is usually fully effective. There is also an increase in resistance to proguanil (Paludrine) in a daily dose of 100 mg. My wife has the dubious distinction of being the first

recorded case of malaria in the Gambia in a subject taking regular proguanil. I am not altogether happy about the suggestion of taking chloroquine as a prophylactic. This is a very valuable therapeutic agent for the treatment of overt attacks of malaria and its widespread use as a prophylactic agent is likely to speed up the development of resistant strains of plasmodia. These are already widespread in parts of the Far East.

A further point to consider is the question of chemoprophylaxis in women starting a family. Pyrimethamine, as a potent inhibitor of folate metabolism, is not to be recommended. I have seen the detrimental effects of chloroquine when continued throughout pregnancy. Many of the expatriate community in the Gambia used chloroquine and, although this was by no means a controlled study, many women had small babies, delivered early, and—in one case at least—with auditory defects, probably attributable to the drug. Martindale's *Extra Pharmacopoeia* recommends proguanil as the drug of choice for malaria prophylaxis in pregnancy, but what advice should be given to women in areas where there is marked resistance to this drug?

It is very important that those travelling abroad, whether on business or on holiday, should receive advice about malaria prophylaxis that is up to date. Such advice is very important but is not easily come by. Chemoprophylaxis is very effective, if the correct drug for the situation is taken in an adequate dose and continued for four weeks after exposure.

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One man's schizophrenic illness

SIR,—I was very impressed by the excellent description presented by Mr Peter Wescott (14 April, p 989) in his personal paper "One man's schizophrenic illness." After reading his report a second time, I had the strong impression that Mr Wescott, despite the fact that he can write so well and present his symptoms in such a comprehensible manner, could possibly be doing even better if his medication regimen were modified.

Mr Wescott's description of the "four suicidal attempts and some period of suffocating depression" suggests that his diagnosis should possibly be modified to be that of schizoaffective illness, or what Dr Carlo Perris of Sweden prefers to call cycloid illness. If Mr Wescott had been treated at our medical centre, he would have been on an adequate course of lithium; small dosages of a neuroleptic would have been added only if he had shown an insufficient response to lithium. I am quite sure that the same treatment would have been rendered in Dr Perris's medical faculty. The reason for my writing this letter is that Mr Wescott sometimes feels "that the richness of my pre-injection days—even with brief outbursts of madness—is preferable to the numbed cabbage that I have become." He goes on to say, "... once I lived in a fascinating ocean of imagination, I now exist in a mere puddle of it." These excerpts are excellent examples of the side effects of neuroleptics and at the same time indicate that he should have the opportunity of an adequate exposure to lithium therapy, only being given neuroleptics in very small doses if the lithium falls short in the therapeutic goals.

Mr Wescott's comments about the "family GP" and about psychiatrists in general should be a teaching lesson for all of us psychopharmacologists. I hope that Mr Wescott has the opportunity to read a review of this problem by Carlo Perris.¹ I not only wish Mr Wescott the very best in the future but also hope that he has the opportunity to return to the richness of his pre-injection days.

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¹ Perris, C, *Archives of General Psychiatry*, 1978, **35**, 328.

How to use an overhead projector

SIR,—Dr T S Murray's (3 March, p 602) "How to do it" article on the overhead projector missed one unique and very versatile feature. It is possible, by use of a xerox machine or similar copier, to produce projectable transparencies from books, drawings, tables, or EKGs in a matter of seconds. An 8½ × 11 inch sheet of acetate or similar material is simply substituted for paper in the machine. The resulting transparency is obtained quickly and inexpensively and is usually of high quality.

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Doctors and children's teeth

SIR,—I should like to raise an additional point regarding your recent leading article "Doctors and children's teeth" (12 May, p 1231).

In the last 25 years as a psychiatrist working with children I have often questioned a mother about the attitude of the father or stepfather towards the child, and only too frequently the answer is: "Very good, doctor. He always brings him sweets when he comes home." This social pattern of making sugar equate with affection must be altered in any fight against dental caries or obesity, or any other illness caused by excessive consumption of sugar.

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Drugs for epilepsy

SIR,—I refer to the article on epilepsy by Drs D F Smith and J C Mucklow (14 April, p 1000). The statement that phenytoin is now generally regarded as the anticonvulsant of first choice in treating tonic-clonic epilepsy is not entirely accepted by most dealing with epilepsy. It is indeed a broad-spectrum anticonvulsant but there are many problems with its use in practice, particularly in younger patients. The disfiguring skin manifestations like acne, hyperkeratosis, hirsutism, etc, are certainly unacceptable.

In the case mentioned the combination of phenytoin, primidone, and clonazepam is, I think, against the modern practice of single-drug therapy. Clonazepam is a very weak anticonvulsant when used orally. It is very essential to classify the type of epilepsy in such cases and then a suitable single drug should be tried in