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