

than 40 µg/100 ml one begins to have some awareness of the gravity of the situation.⁷ In view of these results we think it regrettable that the authorities in Britain have not seen fit to institute a similar screening programme on children in British cities. No doubt too much time would be spent in deciding which laboratory could be trusted to provide the right blood lead levels.

The appearance of the "chicken-or-the-egg" hypothesis was predictable but unnecessary in view of a number of elegant studies from America which have demonstrated that hyperactivity can be induced in rats suckled by mothers fed lead in their diets,⁸⁻¹¹ whereas those suckled by mothers on normal diets are unaffected. This hyperactive behaviour shows a paradoxical pattern of response to drug treatment identical with that of "pure" hyperactivity in children¹⁰ and is correlated with changes in neurotransmitter metabolism in the brain.⁸ David's demonstration¹² that children with "pure" hyperactivity have high body burdens of lead was obliquely criticized in your article, but David has since repeated his study with larger groups of children and has confirmed his earlier studies to a high degree of statistical significance.¹³ Of even more importance, however, is his finding that all children with "pure" hyperactivity, even those with blood lead levels in the "normal" range, are cured by treatment with penicillamine and that the cure is permanent so far as can be judged after a one-year follow-up.¹³

You dismiss airborne lead as being of no significance in terms of domestic exposure and attempt to corroborate your statement by a very misleading juxtaposition of figures. You compare the 15 µg of lead absorbed per day from the atmosphere with the 200-300 µg contained in the diet before absorption. The non-specialist medical reader might easily be led to infer that airborne lead is only one-twentieth as great a threat as that contained in the diet. What must be remembered is that only about 10% of the lead presented to the gastrointestinal tract is absorbed—20-30 µg, an amount of the same order as that absorbed from air. Children of course absorb considerably more from the gut, about 50%, but on the other hand we do not know what fraction of inhaled air children absorb. And it is the children who are most at risk, not consenting adults. The United States National Research Council state this with great clarity when they write, "The other special category of inner city inhabitants for whom the level of lead in ambient air presents a significant threat consists of infants and young children."¹⁴

We agree with you on the need for more research and are now engaged on this. But we consider that the findings mentioned above already go a long way to providing a solution to the problem which you pessimistically think will long remain unsolved.—We are, etc.,

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¹ Byers, R. K., and Lord, E., *American Journal of the Diseases of Children*, 1943, 66, 471.

² Lansdowne, R. G., et al., *Lancet*, 1974, 1, 538.

³ David, O. J., *Lancet*, 1974, 1, 866.

⁴ Bryce-Smith, D., and Waldron, H. A., *Lancet*, 1974, 1, 1166.

⁵ Landrigan, P. J., Whitworth, R. H., and Baloh, R. W., *Lancet*, 1974, 1, 1167.

⁶ Whitworth, R. H., et al., *Morbidity and Mortality Weekly Report*, 1974, 23, 157.

⁷ Waldron, H. A., and Stöfen, D., *Sub-Clinical Lead Poisoning*, p. 122. Academic Press, London, 1974.

⁸ Sauerhoff, M. W., and Michaelson, I. A., *Science*, 1973, 182, 1022.

⁹ Silbergeld, E. K., and Goldberg, A. M., *Life Sciences*, 1973, 13, 1275.

¹⁰ Silbergeld, E. K., and Goldberg, A. M., *Experimental Neurology*, 1974, 42, 146.

¹¹ Michaelson, I. A., and Sauerhoff, M. W., *Environmental Health Perspectives, Experimental Issue no. 7*, 1974, p. 201.

¹² David, O., Clark, J., and Voeller, K., *Lancet*, 1972, 2, 900.

¹³ David, O., personal communications.

¹⁴ National Research Council, *Airborne Lead in Perspective*, p. 328, Washington, United States National Academy of Sciences, 1971.

Semen Cryobanking

SIR,—Having had some experience with artificial insemination by donor (A.I.D.), frozen semen, and vasectomy counselling, may I comment on the interesting article by Mr. M. S. Frankel on "Role of Semen Cryobanking in American Medicine" (7 September, p. 619).

The author states that "the potential benefits of semen cryobanking are enormous, yet . . . its application (particularly commercially) may produce unexpected and unwanted consequences." There is no evidence to date that the benefits of frozen semen are "enormous." The only advantage that I have found from those who use frozen semen is to avoid donor and recipient meeting each other. As frozen semen is far less likely to cause a successful pregnancy, far more inseminations are required and so the recipient must present herself more often for insemination. It has yet to be proved that there are no late complications or side effects for the progeny when frozen semen is used. As Mr. Frankel himself states, "we still know little about the effects of frozen semen including its efficacy and genetic consequences." Is he not contradicting himself?

Concerning the use of frozen semen as a fertility insurance for men undergoing vasectomy, I am sure that no surgeon in the U.K. would undertake a vasectomy on a man who is concerned with the possibility of wanting more children; he would regard this as a contraindication. Further, no studies have been undertaken (to my knowledge) which indicate that there is a reasonable chance of a successful pregnancy after frozen semen has been stored for several years. The few isolated cases reported in the press do not provide a satisfactory basis on which to offer such a service to prospective vasectomy patients.

Mr. Frankel states that semen cryobanking might be used as a method of "influencing the genetic quality of the species by making available a wide range of genetic material." Surely this indicates that a supply of frozen semen obtained from a "superman" donor, with a potential ability to fertilize many women, should never be contemplated. The health of our species depends upon a variety of genetic material, and until full genetic analysis of chromosomes is possible, who knows what potentially dangerous recessive genes a "superman" donor may be carrying? Furthermore, it is common knowledge that the most brilliant of children have come from the dullest of parents. Therefore a donor of low I.Q., of poor physique, and absolutely antisocial in behaviour may be a

better "superdonor" than a "superman." The conclusions are obvious—keep away from frozen semen, semen banks, and "supermen."

The increasing American practice of freezing dead persons in liquid nitrogen in the hope of reviving them at a later date is far safer for the species. Perhaps it is such ideas that need freezing in liquid nitrogen.—I am, etc.,

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A Human Right

SIR,—In your leading article (21 September, p. 699) you state: "Today it would be hard to find a medical school preparing its students thoroughly enough to cope with the family planning problems that will loom so large in most of their patients' lives." On behalf of the new medical school in Southampton I would like to submit that at least a serious attempt is being made to provide such preparation for our medical students in that one of the principal aims of the curriculum is to give students an opportunity of assessing priorities in medicine. In this connexion there is no doubt that the case for family planning and population control must be debated.

In the five-year course at Southampton most of the theoretical teaching takes place in interdisciplinary systems courses which form a major part of the curriculum in the first 2½ years. The first systems course is in "human reproduction" and commences midway through the first term of the first year. In this course there are seminar topics on, for example, "the relative place of contraception, sterilization, and abortion in population control," "medical termination of pregnancy," and "economic aspects of population control" and lectures and essays on the various presently available methods of contraception. Indeed, one-sixth of the course in human reproduction is devoted to topics of human sexuality and family planning. In the third year, during their attachment to clinical obstetrics and gynaecology, the students attend contraceptive clinics, including psychosexual problems, and further tutorials on common sexual malfunction. In their fifth and final year, during the period of clinical apprenticeship, weekly participation in the work of a family planning clinic is mandatory.

It is therefore one of the objectives of the course in human reproduction and obstetrics that the new graduates in medicine in Southampton will be thoroughly conversant with family planning methods and with their impact on the lives of their patients.—I am, etc.,

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Squint

SIR,—Your comment on Mr. T. K. Lyle's letter (5 October, p. 43) cannot be allowed to pass unanswered.

If the age of 5 is the commonest age at which concomitant squints undergo surgery, this is not because operation is deferred until this age, but because children are referred to an ophthalmologist some considerable time after the squint has become ap-

parent. In your leading article (17 August, p. 430) you express an opinion that was discarded by most ophthalmologists in Britain many years ago. Your support for this delayed surgery is perpetuating an idea which results in many children not developing any form of binocular vision and is performing a grave disservice to squinting children.—I am, etc.,

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Tuberculous Lymphoedema

SIR,—In their report of two cases of tuberculous lymphoedema (28 September, p. 786) Dr. Shaista Hoda and Professor S. M. Rab describe this condition as rare. That this is not everywhere the case is shown by Professor Anomah Ngu,¹ who reported from Ibadan a study of 65 patients with chronic lymphoedema investigated by lymph node biopsy, lymphangiography, examination of blood films for microfilaria, skin tests for filarial antigens, and the Heaf and Frei tests. In 25 of his patients the lymphoedema was caused by tuberculous adenitis and in 30 by chronic pyogenic infection. In no case was *Wuchereria bancrofti* found.

Though I have no records available, my own experience of patients with elephantiasis of the leg or scrotum seen in Northern Ghana was in accordance with these findings.—I am, etc.,

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¹ Ngu, V. A., in *Companion to Surgery in Africa*, ed. W. W. Davey. London, Livingstone, 1968.

Price of Prostatectomy

SIR,—Since a substantial proportion of the endoscopic prostatectomies (and a lesser proportion of the open prostatectomies, for I am an enthusiastic resectionist), reported by Mr. Argyrou and others (24 August, p. 511) were in fact under my care, I feel particularly entitled to comment both on the article itself and on the letters from Mr. R. S. Murley and Mr. P. F. J. Hickinbotham (21 September, p. 739).

First of all I deprecate the concept that a short postoperative stay is necessarily a good thing. Patients should stay in hospital as long as they need, and I am miserably aware that most of ours are sent home far too early. A mean figure of eight days for an admission which includes a prostatectomy is much too small and, rather than attracting praise, should be seen as a lamentable failure of the National Health Service to provide the patient with an adequate service. Furthermore, I am not anxious to be seen by my patients or my employing authority as a purveyor of cheap prostatectomy. I very much hope that as a trained urologist I have more to offer them. Indeed some urologists are indifferent resectionists, as Mr. Murley has found out; they are nonetheless important or valuable people for that.

The essential difference between endoscopic and open prostatectomy to the patient is that the former does not involve an abdominal incision and the consequent postoperative pain. This simple and obvious fact is often overlooked but certainly seems to place the onus upon the open prostatec-

tomist to demonstrate that his operation is better in cases where either procedure is appropriate. No attempt to do this has been made by your correspondents.

Lastly, Mr. Hickinbotham has his horse and cart in the wrong order. Those urologists who offer open prostatectomy to the patient with a large gland and endoscopic prostatectomy to those with a small gland often observe that the open operation is better. The reason is that patients with a large gland have a more favourable condition to treat than those with a small gland and tend to do better whether they are managed by endoscopic or open prostatectomy. Let Mr. Hickinbotham resect a little faster and tackle the larger glands. He will find himself, and his patients, most pleasantly rewarded.—I am, etc.,

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"Lost Threads" with Intrauterine Devices

SIR,—This common problem is handled in a number of ways by gynaecologists and family planning doctors, with varying success and often some discomfort to the patient. The diagnosis is frequently in doubt; some are cases of unrecognized expulsion and some of in situ pregnancy in which the threads of the device have been drawn up by the enlarging uterus. More rarely the device may have perforated the uterus, with or without subsequent pregnancy. Most commonly the cavity of the non-pregnant uterus contains both the device and its threads owing to alteration of the position of the former.

The risk of early pregnancy limits the usefulness of x-rays, and even if two views are taken they may fail to establish the true location of the device. We have found that in expert hands ultrasonic B-scan is preferable as the uterus can be outlined in relation to the device. But the method described below is now preferred as the first step in many cases where pregnancy is not suspected—ideally during a period—as diagnosis and treatment can be virtually simultaneous.

In this department we have recently been using a 4-mm disposable vacuum aspiration curette (Rocket) for biopsy of the endometrium and have found that it is also extremely useful for bringing out the missing threads of intrauterine devices. After bimanual examination and cleaning of the cervix through a duck-billed speculum a single-toothed tenaculum is applied and the uterus sounded. The adaptor on the aspiration catheter is fitted to the small specimen bottle provided and connected to pressure tubing linked to any appropriate source of vacuum. We have found the R4.910 (Rocket) hand pump very satisfactory, operated by an assistant. The soft plastic catheter is then introduced via the cervix to the top of the uterine cavity and suction applied (approximately 50 cm H₂O is sufficient). The catheter is then withdrawn with the suction maintained. The thread (or threads, depending on the type of device) is usually brought out at the first attempt. The device should then be removed as its position is likely to have been disturbed, and a replacement device can be inserted.

The method appears to cause much less discomfort than alternative outpatient procedures using exploratory forceps or endometrial biopsy curettes. However, in nullipara and certain other patients in whom dilatation (to Hegar 4 only) may be required local anaesthesia of the cervix by injection of 1% lignocaine plus adrenaline at the 12, 4, and 8 o'clock positions may be indicated.

The technique as described here is rapid and rarely requires the lithotomy position or any form of anaesthesia. The risk of

damage to the uterus is especially low as the catheter used is soft and flexible. The apparatus is simple, presterilized, and portable and requires no electric power. The method may thus be considered for use by trained personnel in the normal family planning clinic context.—We are, etc.,

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Fatal Puerperal Septicaemia

SIR,—Reports to the Public Health Laboratory Service cited by you (17 February 1973, p. 428) illustrated the tendency of group B streptococci to act as serious pathogens in women after delivery and in newborn infants. It has been suggested that all pregnant women in the last trimester should be screened for the existence of group B streptococci in the vagina and the carriers adequately treated,¹ but the justification for this recommendation has subsequently been questioned.² The carrier rate of the more pathogenic streptococci—for instance, those belonging to group A—is probably much below that of group B streptococci, but the former should not be omitted from the current discussion. The clinical course of an infection with haemolytic streptococci often includes septic shock with coagulopathy. Disseminated intravascular coagulation has been described as a consequence of an overwhelming infection,³ but a generally increased fibrinolytic activity may also play an important role in the pathogenesis of the clinical syndrome, as exemplified by the following case.

A 24-year-old healthy primigravida was admitted to the delivery ward in the 40th week of an uneventful pregnancy after spontaneous rupture of the membranes. After eight hours' normal labour she was delivered with a vacuum extractor of a child with an Apgar score of 9. During the labour the patient's temperature rose to 38°C but fell to normal after salicylate administration. Twelve hours after delivery the patient became ill, vomited, and had a rising temperature and tachycardia. Within one hour the clinical picture of septic shock was evident. The platelet count was 90,000/mm³, the AHF antigen (immunochemical method) was strongly elevated (1,090%), while AHF activity was reduced (42%). The fibrinogen level was low (0.15 g/100 ml) and Owrens P and P (65%) and factor V (23%) were both markedly reduced. The patient had a high fibrinolytic activity in plasma (Schneider's test), an extremely high level of fibrinogen degradation products (end products: D and E) in the serum (1,000 µg/ml), a positive ethanol gelation test, and low antitrombin III (44%) and α₂-macroglobulin (30%) levels. An extremely low value of factor XIII (3 FSF units/ml plasma) was obtained. The laboratory tests, which were available only in part at the acute stage, thus showed a strong activation of both the coagulation and fibrinolytic systems.

The following treatment was given: synthetic plasma expander (Hemacel), plasma, fresh blood, and high-molecular-weight (74,000) dextran, 0.01 g/kg body weight tranexamic acid, 5 g ampicillin, 250 mg hydrocortisone, and 80 mg betamethasone. The patient's condition deteriorated rapidly, she went into coma, became excessively acidotic, and an adequate blood pressure could not be maintained. She died 19 hours after delivery. At necropsy marked acute inflammation was found in the uterine wall with beginning abscess formation. Fibrin thrombi were present in the vessels of the lungs and the kidneys, and the surfaces of the abdominal organs showed a tendency to generalized bleeding. Abundant growth of haemolytic streptococci group A, sensitive to penicillin, was obtained in cultures from the vagina, uterus, liver, and spleen.

The condition of the baby was initially satisfactory but deteriorated at 12 hours age with the