large series can show whether the incidence of handicap is reduced.

The second is that there is some hope that if more resources for the handicapped are used effectively the long-term consequence may be a reduction in the pressure for hospital places. If the handicapped and their families can be given the help that is needed to avoid institutional care in childhood the extent of dependency among the adult handicapped may well be reduced. This too is prevention.

The dichotomy that you suggest between spending on obstetric services or on services for the handicapped is a peculiarly unfortunate one. The acute services on which spending might be more reasonably limited are those devoted to the avoidable diseases that you instance. Perhaps the sustained campaign of health education that you suggest could be funded by diverting resources devoted to these conditions. At least it would seem reasonable to make any further spending on these acute services conditional on such a campaign.

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¹ Abramowicz, H K, and Richardson, S A, *American Journal of Mental Deficiency*, 1975, **80**, 18.

² Lewis, E O, *Report on and Investigation into the Incidence of Mental Deficiency in Six Areas, 1925-1927*. London, HMSO, 1929.

³ Edington, P T, Sibanda, J, and Beard, R W, *British Medical Journal*, 1975, **3**, 341.

the social class pattern of their catchment areas. Social class is still a most important factor in reproductive performance: in the UK in 1970 the PMR was 11.7 per 1000 for social classes I and II and no less than 26.8 per 1000 for classes IV and V.⁶ Contraception, termination of pregnancy, and sterilisation are other important contributory factors to falls in the PMR.

In conclusion, the only satisfactory way of evaluating the effectiveness of fetal monitoring and other innovations in medical practice is by conducting randomised controlled clinical trials on a large enough scale to permit the many variables that may influence the final outcome to be controlled. In 1976 it is still necessary to point out that such studies should be conducted *before* an innovation becomes part of established clinical practice.

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¹ Chalmers, I, *et al*, *British Medical Journal*, 1976, **1**, 735.

² O'Driscoll, K, Carroll, C J, and Coughlan, M, *British Medical Journal*, 1975, **4**, 727.

³ Fedrick, J, and Yudkin, P, *British Medical Journal*, 1976, **1**, 738.

⁴ Edington, P T, Sibanda, J, and Beard, R W, *British Medical Journal*, 1975, **3**, 341.

⁵ Tipton, R, *Proceedings of Third Study Group of the Royal College of Obstetricians and Gynaecologists*. London, RCOG, 1975.

⁶ Chamberlain, R, *et al*, *British Births 1970: Vol 1, First Week of Life*. London, Heinemann Medical, 1975.

SIR,—It is stated in your leading article on the DHSS consultative document (3 April, p 787), that technological innovation in obstetrics in the last decade "has been proved to be effective." With reference to induction of labour and fetal heart monitoring during labour a review of the evidence indicates that the effectiveness of these procedures in reducing perinatal mortality has yet to be proved.

It was assumed that the marked increase in the incidence of induction of labour during the last decade was contributing to the falling perinatal mortality rate (PMR) until public debate stimulated obstetricians to evaluate the results of the procedure in a more objective manner. In a population-based study Chalmers *et al*¹ found that a trebling of the induction rate from 1966 to 1972 did not improve the PMR, and O'Driscoll *et al*² have shown that a low induction rate is compatible with good results. In another study³ a rise in the incidence of induction was associated with a fall in the PMR, but the authors acknowledged that the latter finding might be a function of influences other than changes in clinical practice.

While several authors suggest that fetal monitoring during labour reduces the number of intrapartum stillbirths,^{4,5} such results may also be due to other factors. You certainly go beyond the evidence in stating that at St Mary's Hospital, Paddington, "perinatal mortality has been brought down from 30 to 12 per 1000 in six years with the introduction of fetal monitoring during labour." In considering the statistical significance of this fall in mortality it must be remembered that the rates during the period were based on small numbers of deaths.⁴ How much of the fall in rate might be attributed to changes in the sociobiological characteristics of the hospital's maternity population over the period? St Mary's and the other prestigious inner city hospital maternity units possibly attract a greater proportion of upper social class mothers than one would expect on the basis of

SIR,—In your leading article "A policy of despair" (3 April, p 787) you suggested that "Mrs Castle has, perhaps, allowed sentiment to overrule intellect" by giving practical expression to public sympathy for the old and the handicapped. On the contrary, I suggest that Mrs Castle has merely identified the greatest need and then had the courage to act accordingly. There is no doubt that the DHSS would find it much easier to ignore the mentally handicapped than to argue with hospital authorities.

The provision of suitable facilities for the severely subnormal persons who do not require nursing and medical care is totally inadequate in Britain if one accepts the view that the hospital is not the right place for them. With no disrespect to the nursing staff involved, I submit that this category of mentally handicapped could lead a more dignified, active, and natural (and hence more enjoyable) life if they were accommodated in "farm units"—with a few acres of land, greenhouses, workshops, etc—similar to establishments belonging to Home Farm Trust or Cottage and Rural Enterprises Ltd. Incidentally, I understand that the overall cost of providing such accommodation is far less than that of sending a person to hospital anyway.

Please do not attack, directly or indirectly, those who are least able to fight for themselves.

D L O HUMPHREYS

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SIR,—I was most interested in the paper by Dr S Hagard and Miss Felicity A Carter (27 March, p 753) on cost-benefit analysis of a programme for the prevention of Down's syndrome. I wish only to make three points.

(1) The authors assume that "only those with IQs over 50 could work, and then only with half the productivity of an average person."

One wonders what sort of work the authors are thinking of—personally, I do not know of any subjects with Down's syndrome who could even manage the tasks and output required in a sheltered workshop.

(2) The authors stick, perhaps rightly, to the financial cost, but should we, as a caring society, not also consider the emotional costs? These are difficult to judge for someone who has not had that particular tragic experience—it has been described as a bereavement for which the mourning can never end.

(3) In your leading article "A policy of despair" (3 April, p 787) you criticise the Minister's decision to focus money on the provisions for mentally handicapped subjects while cutting back on maternity services and make the relevant point that prevention is the proper goal in mental handicap. This is a complex issue but personally I think that more money has to be spent on provisions at this time as a short-term goal, while clearly the work of Dr Hagard and Miss Carter emphasises the need to mobilise opinion in the profession in relation to the paramount importance of prevention. In medicine we talk about prevention, but here is an area where relatively small sums of money could prevent disability and an incalculable amount of parental distress. The BMA, the colleges, and the voluntary societies should all make urgent representations to the Minister about the need for a programme of prevention of Down's syndrome.

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Tubal pregnancy and surgery

SIR,—The views expressed in his letter about this subject (3 April, p 837) indicate that Mr D F Hawkins is following the lead set by so many of his postgraduate students in misunderstanding or neglecting what I have repeatedly said and written when advocating, in certain clearly defined circumstances, salpingo-oophorectomy rather than salpingectomy with the object of ensuring a higher degree of subsequent fertility by placing "all the eggs into one basket."¹ The underlying thesis, first propounded 20 years ago, has been so misrepresented and misquoted that, when I last described my approach and practice,² I added, "Having started this idea in respect of the treatment of any unilateral tubal disease I am often accused of recommending removal of the normal ovary as well as the tube as the standard treatment of tubal pregnancy. This is not true. . . . Read again what is written above."

If Mr Hawkins reads, or rereads, my original article¹ he will discover that the argument was applied to any form of congenital or acquired unilateral tubal occlusion found in women anxious to bear children. Tubal pregnancy was mentioned merely as a simple example and other indications specified included those which prompted Professor J S Scott and his associates to carry out "paradoxical oophorectomy" with such good effect (13 March, p 631). And if Mr Hawkins reads the account of the work of Abrams and Farrell,³ which he quotes as having "categorically disproved" my hypothesis, he will find that it did nothing of the kind. These authors were not concerned with the relative merits of salpingectomy and salpingo-oophorectomy in the treatment of tubal pregnancy; these operations they grouped together in order to compare subsequent fertility following ablative surgery with that following salpingostomy or

salpingotomy. In so doing they collected from the literature some reports of the incidence of further pregnancies following salpingectomy with or without oophorectomy. One of these, as Mr Hawkins points out, was published from Liverpool.⁴ If he reads this he will discover that it emanated from my own department and elaborated a previous preliminary communication by the same member of staff (Bender⁵), who followed up 264 cases of tubal pregnancy treated in various ways. The findings showed that salpingectomy was followed by pregnancy, intrauterine or ectopic, in 43% of cases whereas salpingo-oophorectomy was followed by pregnancy in 57% of cases. But it was made clear that the difference did no more than "suggest" that removal of the ovary of the affected side is sometimes advantageous from the standpoint of subsequent fertility. As is emphasised in this article, and in others referred to by Mr Hawkins, the occurrence of pregnancy after the surgical treatment of tubal pregnancy is determined by many factors such as the age, parity, and intent for further childbearing of the woman concerned, as well as the particular procedure carried out and the reasons for its choice.

The fact is that it is impossible to prove for certain the correctness of my contention because the clinical variants are so many that prospective or retrospective controlled studies of matched cases are impractical. Moreover, such studies are outruled by the overriding need deliberately to select either salpingectomy or salpingo-oophorectomy according to the circumstances of individual cases. For similar reasons, and no doubt to the disappointment of Mr Hawkins, it will never be possible to refute my views by clinical statistics. Any attempt to do so involves comparing oranges with lemons.

The validity of my philosophy must depend mostly on its conforming logically and scientifically with current knowledge of the physiology of conception and on the long-established Lipschutz's "law of follicular constancy." And no one has yet produced any convincing argument or evidence to upset it. Although, as mentioned in your leading article (13 March, p 607), some reported statistics give a measure of support for my concept, they are not conclusive and the main practical evidence in its favour is the fact that women complaining of sterility of long duration not infrequently conceive within a short time of having an oviductless normal ovary removed. Professor Scott and his associates describe well-documented happenings of this kind and these confirm my own experience in isolated cases dealt with during many years.

For, contrary to Mr Hawkins's implication based on hearsay which he did not trouble to confirm, I always practised what I preached, and still preach. If he reads the proceedings of a meeting of the obstetrical and gynaecological section of the Royal Society of Medicine held on 28 March 1958⁶ he will learn that I then presented a detailed account of one of the earliest cases in which I removed a normal ovary to raise fertility; this ovary was served by only a rudimentary tube. The patient, whose complaint was sterility of 3 years' duration, conceived within 3 months of the operation and ultimately produced a baby at term, although this after-history was not known at the time of my report. Thereafter I continued to put my views to practical tests whenever the circumstances justified it, but, as I have already written,² these do not arise very often.

Mr Hawkins's estimate of the distance between two normal ovaries requires measurements taken at laparoscopy, gynaecography, and laparotomy before it is acceptable as a fact. And more relevant from the standpoint of the entry of an ovum into

the tube is the distance between its parent ovary and a freely moving abdominal ostium, for, as explained in your leading article, the pick-up normally involves embracement of the ovary by the fimbria. Transperitoneal migration of the ovum cannot be a frequent phenomenon as otherwise women with only one tube and one ovary, these being on opposite sides of the pelvis, would not be infertile. I have seen several suffering from this state of affairs and cannot recall their ever conceiving.

The not uncommon finding of a tubal pregnancy associated with a corpus luteum in the contralateral ovary strongly suggests the occurrence of external migration and it has long been postulated that this explains the ectopic implantation in such cases. The advanced development of the ovum, it is said, is responsible for its tubal arrest. This means, of course, that the migration is of a zygote, not of an unfertilised ovum. I sometimes wonder if this migration is sometimes internal rather than external, the fertilised ovum passing down one tube, across the uterine cavity, to implant in the other.² In this respect it has been shown that the tubal current is not always from ampulla to isthmus; it can normally be in reverse.

The idea of internal migration to account for certain cases of tubal pregnancy is entirely fanciful, mooted merely to attract consideration and investigation. It may quickly be disproved and die. The concept of the value of paradoxical oophorectomy, however, is not a "dead issue" as Mr Hawkins would have it; it remains very much alive and continues to be applied to the benefit of their patients by gynaecologists with understanding and scientific motivation.

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¹ Jeffcoate, T N A, *Journal of Obstetrics and Gynaecology of the British Empire*, 1955, **62**, 214.

² Jeffcoate, Sir Norman, *Principles of Gynaecology*, 4th edn. London, Butterworths, 1975.

³ Abrams, J, and Farrell, D M, *Obstetrics and Gynaecology*, 1964, **24**, 281.

⁴ Bender, S, *Journal of Obstetrics and Gynaecology of the British Empire*, 1956, **63**, 400.

⁵ Bender, S, *Journal of Obstetrics and Gynaecology of the British Empire*, 1955, **62**, 306.

⁶ Jeffcoate, T N A, *Proceedings of the Royal Society of Medicine*, 1958, **51**, 509.

Pregnancy after renal replacement

SIR,—I am surprised that in your recent leading article on this subject (27 March, p 733) you did not mention the survey carried out by Rifle and Traeger,¹ for the results quoted there from centres in North America and Europe are much better than those quoted by you.

In the series of 103 women who became pregnant after renal transplantation 86 normal births occurred in 76 patients. There were nine spontaneous and 22 induced abortions. It is likely that the number of spontaneous abortions was under-reported, but the majority of those noted occurred when the creatinine clearance was between 18 and 50 ml/min. Of the 22 terminations of pregnancy, only three were performed on purely medical grounds. Of the 86 successful pregnancies, 42 were delivered by caesarean section, and of the remainder, half were delivered before 37 weeks. Of 32 babies in which such a measurement was possible 25% had a birth weight of less than the tenth percentile for maturity. Two women died after normal pregnancy—one of septicaemia and the other of a cerebrovascular accident.

The results of the survey quoted in part above suggest that a woman with a kidney transplant which is functioning well can con-

ceive and has a reasonable chance of delivering a normal baby, and they lend weight to your suggestion that termination of pregnancy may be too readily resorted to in this group. The situation is, however, much less favourable in women with poor renal function.

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¹ Rifle, G, and Traeger, J, *Transplantation Proceedings*, 1975, **7**, 723.

Sir,—Your leading article on this subject (27 March, p 733) is timely, since it deals with a problem which is increasing. Much of the literature is buried in specialist journals and is therefore not readily encountered by obstetricians.

We found in general that registry data relating to pregnancy after renal transplantation are not sufficiently detailed and accordingly reviewed the literature, which yielded reports of 40 renal transplant patients who achieved 45 pregnancies (including two sets of twins) resulting in a live birth.¹ About one-third of these had not received previous advice on contraception; indeed, many had been under the impression that they could not conceive. As a result pregnancy was not diagnosed in some cases until well into the second trimester and one was almost at term. It seems reasonable to conclude that antenatal care in some of these particularly vulnerable women must have been grossly inadequate. We found only one paper² which attempted to define selection criteria for transplant patients who seek advice on a prospective pregnancy and it may be that many such cases are either aborted unnecessarily or are allowed to continue unwisely.

In Newcastle upon Tyne there is close co-operation between nephrologists and obstetricians, and all female transplant patients are now routinely counselled about contraception and pregnancy. Patients and their husbands are invited to discuss all the implications of pregnancy and parenthood and the long-term prognosis. Whether or not a woman should even consider the possibility is decided on the basis of general criteria, defined elsewhere.¹ Couples who express a desire for parenthood undergo a full pre-pregnancy investigation before a final decision is reached. This starts with a semen analysis on the husband, since it would be pointless to expose women to intensive laboratory investigations if the husband is infertile. In suitable cases the further work-up includes a full investigation of the potential mother's renal function, and samples of blood from her and her husband are collected and stored for subsequent immunological assessment, especially after the birth of the baby. When the pre-pregnancy investigation is complete advice can be given. It can be only advice, since the parents must ultimately decide for themselves what degree of risk is acceptable. In our experience, if the situation is tackled prospectively and the couple feel they are being treated responsibly the final decision is usually in the nature of an agreement rather than a challenge.

In our report¹ we have described in detail the protocol for investigation and management during the preconception phase, the subsequent pregnancy, and delivery. Arrangements for postnatal surveillance are also necessary. We hope that others will adopt a similar