matching was attempted with total sample sizes of 2779 and 12 588 respectively showed no differences in birth weight or of the incidence of preterm (<37 weeks' gestation) delivery.

Thus the evidence that is available does not support the idea that modern legal abortion generally increases the risks of prematurity in a subsequent pregnancy. The question raised in the *BMJ* interview that still has to be answered is whether the reduction in the incidence of low birth weight can be ascribed to legal abortion.

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Women who regret sterilisation

SIR,—Mr R M L Winston's paper (30 July, p 305) provided much valuable information about women who regret sterilisation, although interpretation of the facts presented was restricted by the lack of a control group. This was inevitable because of the nature of the study, but perhaps some of my own figures may be found acceptable for comparison.

A total of 1081 women sterilised consecutively at the Women's Hospital, Liverpool, were followed up 24-42 months later and 614 (56.8%) of them were traced. The age and parity distributions of this group at the time of sterilisation are shown in tables I and II. It may be seen that the mean age (32.1 years) of patients sterilised at this hospital is 5.4 years older than the mean age of patients subsequently seen by Mr Winston for reversal of the procedure, which appears to support his

hypothesis that patients sterilised at a young age are more likely to regret the operation.

In answer to the question "Do you regret having been sterilised?" an affirmative answer was given by 54 (8.8%) patients. The reasons given for regret were often multifactorial and included the following: desire for further children, 18; loss of libido, 9 women and one husband; menstrual disorders, 6; dysmenorrhoea, 2; dyspareunia, 2; irritability and depression, 4; excess weight, 4; early menopause, 1; vague aches and pains, 5. The commonest reason for regretting the operation was a desire to bear children to a new partner. Although women who remained married to the same partner sometimes expressed transient yearnings for further children, none of them felt strongly enough about childbearing to regret having been sterilised. Many patients expressed dissatisfaction with the operation for bizarre reasons probably unrelated to the procedure. Trivial aches and pains were frequently blamed on the operation and one patient aged 45 years was convinced that it had brought on an early menopause. Many of these symptoms would probably have responded to explanation. The age distribution at the time of operation of patients who subsequently regretted the procedure (table I) also suggests that sterilisation performed at a young age is more likely to lead to regret than it is in older women.

Although these "regrets" did not all amount to requests for reversal of the procedure, the trend is in accord with Mr Winston's findings. The association between parity and subsequent regret of the procedure was less clear (table II). Although patients sterilised at a young age appear to run an increased risk of living to regret their decision, it would be unwise to refuse them sterilisation simply because of their age. The underprivileged grand multipara of tomorrow is the young woman of today who already has two or three children. Perhaps such a woman is the one most in need of sterilisation. Instead I would support Mr Winston's plea for careful counselling of the very young before sterilisation, particularly with a view to predicting the likely divorce.

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Oestrogen treatment for menopausal flushing

SIR,—Dr W H Utian (27 August, p 577) says that double-blind studies have shown that hot flushes respond to short-term oestrogen therapy. We have never claimed that flushes do not respond to oestrogens, but have pointed out that flushes also respond to other agents, including placebos, and that the superiority of oestrogen over placebo has yet to be established.¹

In the paper by Campbell *et al*² which Dr Utian cites the patients were studied for only four months, since the authors had already decided that patients with severe menopausal symptoms "did not justify a prolonged placebo trial." All patients were given oestrogen before being given placebo and the response to this subsequent placebo period was unimpressive. The poor placebo response found by these workers is unusual and contrasts sharply with the findings of Coope, which are reported in the same publication.³ She found that patients

made a striking improvement when given placebos and that over the first three months, when the women did not know whether they were receiving hormones or not, there was no statistically significant difference in the flush count between oestrogen and placebo groups. The study by Campbell *et al* cannot therefore be taken as proof of the superiority of oestrogen over placebo in the management of menopausal flushing. Well-conducted double-blind crossover studies must be done if the issue is to be clarified.

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- ² Campbell, S, et al, in *Management of the Menopause and Postmenopausal Years*, ed S Campbell, p 149. Lancaster, MTP, 1976.
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Oestrogen treatment and endometrial carcinoma

SIR,—In your leading article on this subject (23 July, p 209) you adopt an unusually passionate tone, suggestive more of fervent evangelical zeal than of calm scientific appraisal. The editor of the *Lancet* may want to comment separately on the way his judgment has been impugned, but the rest of your tirade also requires rejoinder, particularly the strident cry that "each and every one of these criticisms is invalid and shows a misunderstanding of the case-control approach."

The latter contention is somewhat similar to the argument offered by alchemists that Lavoisier failed to comprehend the basic ideas of phlogiston. It is the advocates of the "case-control" approach, not the critics, who show a misunderstanding of elementary scientific reasoning. For the sake of simplicity, ease, and convenience, case-control investigators work backwards, examining an "effect" group (called *cases*) and a "non-effect" group (called *controls*). The antecedent rate of occurrence of the "cause" is then compared in these two groups. In defence of this reverse logic case-control investigators offer the ideological argument, as do you, that customary scientific standards can be ignored and that "what matters is comparability of cases with controls in terms of factors which may be related to the disease or the exposure being studied."

This argument is scientifically untenable for at least two reasons. Firstly, case-control investigators almost never pay suitable attention to demonstrating true comparability of the clinical (rather than demographic) factors that are related to disease and pharmaceutical exposure. Secondly, when a case-control study is completed the investigators want to conclude that a cause-effect relationship exists. Such a conclusion requires that the reasoning be logically acceptable in a forward, not backward, direction. Accordingly the investigators must demonstrate that the observed relationship was not biased by events that may have occurred, in a forward direction, between the imposition of the alleged cause and the occurrence of the alleged effect. In particular the compared patients who have received or not received oestrogens should be similar both in the clinical characteristics that serve as reasons why the drug may have been prescribed and in the procedures used to evoke

TABLE I—Age distribution at time of sterilisation

Age (years)	No sterilised	No regretting sterilisation (%)
<21	0	—
21-25	49	10 (20.4)
26-30	179	19 (10.6)
31-35	205	15 (7.3)
36-40	121	6 (5)
>40	60	4 (6.6)
Total	614	54 (8.8)
Mean age (years)	32.1	30.1

TABLE II—Parity distribution at time of sterilisation

Parity	No sterilised	No regretting sterilisation (%)
0	2	0
1 or 2	158	17 (10.7)
3-6	408	34 (8.3)
>6	46	3 (6.5)
Total	614	54

Mean parity of whole group 3.86.