adding yet another case to five reported from this unit in 1970.¹—I am, etc.,

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¹ Javett, S. L., and Brooke, B. N., *Lancet*, 1970, 2, 126.

Place of Vasectomy

SIR,—The letter "Doctors and Overpopulation" (8 January, p. 108), in which a call is made for a massive increase in the provision of vasectomy, again urgently brings to the fore the consideration of the place of vasectomy as potentially the principal method of family limitation and the prevention of "overpopulation pollution."

The recent correspondence in your columns about vasectomy techniques was entirely from consultant surgeons who are also responsible for the many patients on very long lists awaiting skilled surgical procedures. It therefore seems appropriate at this time to relegate vasectomy to a more appropriate level and to regard it simply as a family planning procedure on a par with the insertion of an intrauterine contraceptive device, but without the attendant risks of uterine perforation, pelvic infection, or the need for regular replacement of the intrauterine contraceptive device.

Vasectomy cannot be equated for ease and safety with tubal ligation, which requires a general anaesthetic and the valuable time of a gynaecologist, and which in 43% of cases (8 January, p. 84) incurs further gynaecological treatment. Vasectomy can be safely, quickly, and painlessly performed by a trained general practitioner or family planning clinic doctor and usually requires no subsequent medical supervision, the semen tests being laboratory procedure. It is especially uncomplicated using the following technique:

A tablet of diazepam 5 mg is required as a premedication for anxious patients and the 1% lignocaine with adrenaline is given through a $\frac{1}{8}$ in (16 mm) 25 S.W.G. needle on a 2 ml syringe. This enables the sheath of the vas to be anaesthetized while the site of the single midline scrotal incision is held over each vas in turn by the fingers of the left hand; 2 ml of lignocaine is usually found to be adequate for the entire operation, some of it sometimes being given into the sheath when it is exposed. After exposing the vas with atraumatic vasectomy forceps a small section is removed and the cut ends crushed, doubly ligated, and allowed to slip back into the sheath. A single, inverted, fine catgut mattress suture with the knot buried closes the skin and a dressing is not required after the first day.

With waiting lists for this operation running into several thousands I suggest the formation of an association for the promotion of vasectomy, and I would be pleased to hear from other doctors similarly interested.—I am, etc.,

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Trial of Clofibrate

SIR,—Dr. H. A. Dewar and Dr. M. F. Oliver and their colleagues are to be warmly congratulated on their clinical trials on clofibrate (25 December 1971, pp. 767 and 775). We are indebted to them for their detailed work and careful conclusions.

Before accepting clofibrate as a major treatment for patients with angina or for those who have had a myocardial infarction there are certain problems which need stating. There is a danger that some patients and doctors will consider that the new pill will make other measures unnecessary. Coronary disease is largely an environmental disease and there is good evidence that cigarette smoking and lack of exercise are the most important factors. In the Scottish series the control patients who were non-smokers had fewer events than the patients treated with clofibrate who were smokers. The Newcastle group noted that not a single lifelong non-smoker died suddenly. There is also evidence accumulating that controlled exercise may improve the outlook for patients after a myocardial infarction or with angina.

If we decide that the evidence warrants the use of clofibrate in certain categories of our patients do not let us forget advice on the patient's way of living, particularly on his smoking habits and his exercise.—We are, etc.,

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SIR,—As Dr. M. F. Oliver and his colleagues point out in their commentary (25 December, p. 775) on the two trials using clofibrate in the secondary prevention of cardiac infarction, this drug lowers not only the levels of blood cholesterol and triglyceride but also, perhaps more importantly, of free fatty acids. We would like to suggest some ways in which a sustained reduction of free fatty acids might account for some of the otherwise puzzling distribution of benefits from clofibrate.

Aside from their possible long-term atherogenic properties,¹ there are several ways in which elevated free fatty acid levels can directly affect the heart. Firstly, they can make the myocardium more sensitive to the action of catecholamines,² and precipitate a "sudden" arrhythmic death. The outstanding reduction of sudden deaths in both trials, particularly among smokers, is interesting in this context, as smoking abruptly raises free fatty acid levels by causing noradrenaline secretion.³

Secondly, free fatty acids suppress the myocardial uptake of glucose in man.⁴ The increased utilization of fat raises the oxygen requirements of the heart muscle which might initiate angina and oedema of the anoxic tissue, resulting in retrograde thrombosis.⁵ This is especially likely to occur where the coronary circulation is barely adequate, as in the "all-angina" groups who benefited so markedly from the drug. Also the progression of crescendo angina may possibly be explained on the basis of each attack providing a further emotional stimulus for catecholamine release, raising free fatty acid levels, leading in turn to more myocardial anoxia, more anginal pain, further increased free fatty acid levels, and so perpetuating the vicious circle until infarction occurs. A reduction in the frequency or severity of angina induced by emotion rather than by effort in patients taking clofibrate would support this view. Many emotional situations raise free fatty acid levels,⁶ while non-violent exercise can reduce them.

Other questions arise from these con-

siderations—whether the benefit was greater in overweight patients, who tend to have higher free fatty acid levels; whether the free fatty acid reduction on this drug is maintained; and whether there was any difference in the postmortem findings, in view of the inevitable difficulty of classifying the cause of death into "sudden" and "infarction" groups without morbid anatomical data in many of the patients who died. While appreciating practical difficulties incumbent in a large study of this nature, much information on the presence or absence of thrombus or appearances compatible with retrograde spread of infarction might clarify some of the results obtained.

In view of these unresolved questions it might be advisable to avoid concluding too definitely that the protection afforded by clofibrate is unrelated to the effect of clofibrate on serum lipids before the relevance of the most underestimated of the lipid fractions, free fatty acids, has been more fully investigated.—We are, etc.,

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- ¹ Carruthers, M. E., *Lancet*, 1969, 12, 1170.
- ² Kurien, V. A., Yates, P. A., and Oliver, M. F., *European Journal of Clinical Investigation*, 1971, 1, 225.
- ³ Marchison, L. E., Fyfe, T., *Lancet*, 1966, 2, 182.
- ⁴ Lassar, B. W., Wahloquist, M. L., Kaijser, L., and Carlson, L. A., *Lancet*, 1971, 2, 448.
- ⁵ Raab, W., *Annals of the New York Academy of Sciences*, 1969, 147, art. 17, 627.
- ⁶ Taggart, P., and Carruthers, M., *Lancet*, 1971, 1, 363.

Truncal Vagotomy and Pyloroplasty

SIR,—The report from Leeds and York on the results of truncal vagotomy and pyloroplasty (1 January, p. 7) suggests that in Britain gastrectomy for duodenal ulcer is a more satisfactory operation, according to Visick grading, than vagotomy and drainage procedures, particularly when the drainage is by pyloroplasty.

This excellent review will be read by many surgeons who are, or will be, working overseas, and I am concerned lest it may encourage those working in developing countries to revert to the old policy of gastrectomy for duodenal ulcer which was prevalent in the larger centres in those countries 20 years ago. While it proved an excellent operation from the point of view of preventing recurrent ulceration it often proved a most crippling operation in people whose normal staple diet was bulky (rice, maize, tapioca) by virtue of the resulting reduced capacity for food. This reduction in capacity is less troublesome in patients who take the Western type of refined concentrated carbohydrate diet, because a reduction in food capacity need not result in a serious fall in caloric intake but can be very troublesome in patients who depend for their calories on being able to take an adequate quantity of bulky food, particularly when they often rely on one large meal a day. There was no doubt that in south India patients managed better with a vagotomy and drainage procedure.¹ A follow-up in Mysore showed that 34% of gastrectomy patients had normal capacity for food com-