average fat and are much less inclined to strenuous exercise.² This kind of variation is obscured by all indices which combine only height and weight.

I am indebted to Sir John Mott, who some years ago recorded blood pressure and somatotype measurements on men over the age of 50 in his general practice. The proportion with diastolic pressures over 100 mm Hg in various body builds was as follows: linear (n=42) 14%; muscular (n=48) 31%; and fat (n=74) 49%. In middle-aged men the concentration of cases of coronary thrombosis among endomorphic mesomorphs and mesomorphic endomorphs, where musculature and fat are both above average, is remarkable.³ In such, rational treatment for both prevention and rehabilitation would be by a combination of weight reduction and graduated physical training. This should improve an individual's cardiovascular reserve by increasing his power:weight ratio—that is, by increasing his muscular or “active” weight and reducing the burden of fat and other inactive tissue weight that has to be carried. Proportionately less benefit could be expected from this treatment in men of linear build, but they are much less disposed to such illness, partly because they gain much less weight in the process of aging. The greatest weight gains in aging are experienced by those who have more than the average weight at the age of 20, and it follows in a sedentary occupation that, with the combination of less physical exercise and the gain in “inactive” tissue weight, such people must suffer the greatest loss in power:weight ratio prior to the onset of degenerative disorder. The nature of a bus driver's occupation could well diminish his power:weight ratio more than that of his bus conductor colleague. To a mesomorph progressive loss of ability to do what he has habitually been accustomed to may be as frustrating as baulking the psychological drive of an ambitious man. To a more obese woman who has always been less inclined to strenuous activity the sense of loss may be less severe and she may in any case find fulfilment in less competitive ways.

I welcome your suggestion of a prospective population survey which would include subcutaneous fat measurements with the other variables that you mention, in particular smoking. A follow-up study of the thousands of university students appropriately measured some 20-25 years ago or of the large sample of American Air Force men whose relevant measurements taken in 1967 were computerised⁴ could form the basis for such a study of morbidity and mortality. Life insurance companies and their clients too could benefit if measurements of fat could be included in the initial medical examination.

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¹ Behnke, A R, *et al*, *The Relationship of Specific Gravity to Body Build in a Group of Healthy Men*. Bethesda, Maryland, Naval Medical Research Institute, 1950.

² Parnell, R W, *Behaviour and Physique*. London, Edward Arnold, 1958.

³ Gertler, M M, *et al*, *Coronary Heart Disease in Young Adults*. Boston, Harvard University Press, 1954.

⁴ Laubach, L L, and Marshall, M E, *Journal of Sports Medicine and Physical Fitness*, 1970, **10**, 217.

Localised airway obstruction

SIR,—I agree entirely with the main message of Dr I W B Grant's letter on the importance of bronchoscopy for obstructive lesions of the

trachea and larynx (30 April, p 1157), but it is not necessarily true that flow volume loops “can have contributed very little in practical terms to their diagnosis and management.”

Concerning diagnosis, the point is that not every patient referred to a lung function laboratory is previously examined by a chest physician, and indeed I do not think the excellent manoeuvre he described to accentuate stridor is widely known, though I hope his neighbours may be persuaded to include it in their next edition.¹ Therefore a simple respiratory test which will alert the laboratory staff to the need for further history and examination is in fact useful. As for management, flow volume loops can easily be repeated at frequent intervals² whereas bronchoscopy cannot.

Dr Grant describes the apparatus required to obtain flow volume loops as “fairly sophisticated,” and, while I am never sure what “sophisticated” means these days, I imagine he may mean “complicated and expensive.” It is true that for the most pernickety research the loops must be obtained by plethysmography, but for clinical purposes all that is required is a fast-response spirometer with an output that can be differentiated electrically. Surely these are likely to be available outside “major teaching centres.”

These things aside, Dr Grant is absolutely right. If obstruction at tracheal or laryngeal levels is suspected clinically, have a look.

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¹ Crofton, J, and Douglas, A, *Respiratory Diseases*, 2nd edn. Oxford, Blackwell Scientific, 1975.

² Harrison, B D W, *Quarterly Journal of Medicine*, 1976, **45**, 625.

SIR,—I agree with Dr I W B Grant (30 April, p 1157) that flow volume loops are for research rather than diagnosis, but suggest that he goes too far in seeming to exclude physiological tests in the differential diagnosis of chronic asthma and main airway obstruction. If the latter is suspected clinically physiological information can be obtained, before subjecting the patient to endoscopy for anatomical and pathological diagnosis, by a battery of indices from simple tests: increases in FEV₁/FIV₁,^{1,2} and FEV₁/PEFR,³ a lack of correlation of FEV₁/FIV₁ with FEV₁/VC,⁴ and a low FIV₁/FVC.⁵

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¹ Engstrom, H, Grimby, G, and Soderholm, B, *Acta Medica Scandinavica*, 1964, **176**, 329.

² Simonsson, B G, and Malmberg, R, *Thorax*, 1964, **19**, 416.

³ Empey, D W, *British Medical Journal*, 1972, **3**, 503.

⁴ Segall, J J, *British Journal of Diseases of the Chest*, 1972, **66**, 85.

⁵ Al-Bazzaz, F, Grillo, H, and Kazemi, H, *American Review of Respiratory Diseases*, 1975, **111**, 631.

Diet and coronary heart disease

SIR,—Professor A G Shaper and Jean W Marr's recommendations on diet and coronary heart disease (2 April, p 867) are strongly supported by yet another report, that of the US Senate Select Committee on Nutrition and Human Needs under the chairmanship of Senator George McGovern.¹ It is therefore even more surprising that Sir John McMichael

(30 April, p 1155) continues to dismiss the growing body of evidence which relates to coronary heart disease and Western diet. Now all the 17 independent expert groups which have considered the matter, including the COMA Committee, have recommended dietary changes which include a reduction of total fat by the whole community; and almost all have recommended partial substitution with polyunsaturated fat. These committees were appointed by governments, national cardiac societies, and academic bodies such as the Royal Society of New Zealand and the Australian Academy of Science and have sifted the evidence in great detail over a prolonged period. Sir John is naturally concerned to present unnecessary dietary advice being given to the public; but to suggest that all these groups of doctors and other scientists from at least 10 different countries merely followed prevailing fashion is an unreasonable slur on their integrity and impartiality.

The contrary evidence he quotes comes largely from secondary prevention trials on patients in whom the disease is already far advanced and therefore has limited relevance to national dietary policies aimed at preventing coronary heart disease. I was closely involved in two of these trials which he commends. Although the relapse rate was unaffected by diet alone, we stressed that these results could apply only to those with developed disease and not to the population as a whole. Since primary prevention trials of diet alone will never be carried out on the general population owing to the large numbers needed and the enormous costs and practical problems involved we have to make up our minds on the available evidence. If we are to wait for the kind of proof which all of us, including Sir John, would no doubt like to see no general dietary advice on this matter can ever be given.

Sir John warns us against altering the present national diet yet fails to acknowledge the vast changes which have already taken place in recent years. Consumption of unrefined carbohydrates has fallen. National fat consumption has increased from 34% to 42% of our calories since the war. We eat increasing amounts of processed or “junk” foods which are high in saturated fats and other additives and far less natural unprocessed food. The nation's food is constantly being manipulated by commercial interests. It is therefore surely right that the medical profession, which is most concerned with the nation's health, should give the best independent advice available on present evidence.

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¹ *Lancet*, 1977, **1**, 887.

Tuberculosis among immigrants in Glasgow

SIR,—Although Dr K M Goel and his colleagues in their survey of immigrant children in Glasgow (12 March, p 676) may be correct in accepting the absence of a tuberculosis risk to the indigenous population, this conclusion is not supported by their data.

In interpreting the numbers of notifications for tuberculosis among immigrants as lower than in native-born children they have failed to relate numerator to denominator. Twelve notifications in an estimated total of 4500