goods vehicles was more successful. It was followed by a marked decrease in deaths and injuries among occupants of goods vehicles—37% fewer were killed in 1977 than in 1970.²

In 1977 in magistrates courts in England and Wales 1.2 million persons were found guilty of motoring offences; of these 97% were fined.³ Penalties for serious transgressions were too mild. In 82 480 driving licence offences, including driving while disqualified, a fine of £20 or less was imposed in 83%, and £50 or less in 97%. In 7899 cases of dangerous driving the penalty was £50 or less in 51%, and £100 or less in 96%. Fines must be increased if they are to remain a credible deterrent. Disqualification and penalties are ineffective in a small minority of habitual offenders, who often also have a past history of other criminal offences. These cases present a social as well as a legal problem.

Adequate enforcement with suitable penalties can improve road behaviour, but the real answer is to persuade the public that traffic regulations are an essential ingredient of road safety.

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¹ Department of Health and Social Security, *On the State of Public Health for the Year 1977*. London, HMSO, 1978.

² Department of Transport, *Roads to Safety*. London, Department of Transport, 1978.

³ Home Office, *Offences Relating to Motor Vehicles 1977*. London, HMSO, 1978.

Motorcycle and bicycle accidents

SIR,—As a general practitioner and life-long cyclist (in both competitive and touring fields), I have read your recent correspondence on motorcycle and bicycle accidents.

In my view, one of the prime causes of cycle accidents is the large percentage of drivers who just do not "think two-wheels." We read with monotonous regularity of cyclists suffering fatal injuries while riding innocently on their way. Personally, I have long since lost count of the number of times I have been within an inch or two of disaster.

I am in favour of separate cycle or cycle and bus lanes in cities, but until legislation is introduced to protect cyclists—for example, a minimum distance between cyclist and overtaking vehicle, as in France—I fear that the unnecessary slaughter will continue. We all know from the seat-belt fiasco, and the lack of results from supplying the general public with facts on smoking and health, what abysmal "progress" mere persuasion achieves.

Mr H Milnes Walker (10 February, p 413) maintains that cyclists should check usually whether there is a second overtaking vehicle. Surely, it is the responsibility of the overtaking vehicle or vehicles to avoid an accident. Also, the abominable state of many road surfaces, particularly on the near side, makes it mandatory to keep one's eyes ahead to avoid serious accidents caused by hitting pot-holes of various shapes and sizes.

The time is long overdue when cyclists should cease to be regarded as second-class road users—and be given just credit for their efficient, silent, non-polluting, health-giving, and economic mode of transport.

KEVIN J WATSON

Variations in number of births and perinatal mortality by day of week

SIR,—While in no way intending to influence the main conclusions of Alison MacFarlane's interesting article (16 December, p 1670) on the number of births and perinatal mortality by day of week in England and Wales, I think that there is one statistic quoted that could be misleading. She states, *inter alia*, that deliveries in general practitioner units accounted for 12% of total births in 1970 and that this figure had fallen to 8% in 1976. While it is acknowledged that the work load of the general practitioner obstetrician is diminishing,^{1,2} I believe that these figures are a considerable underestimate and may take into account only deliveries in isolated general practitioner units, ignoring those occurring in GPs' beds in consultant units.

The difficulty in determining the figure for all GP deliveries in England and Wales is considerable but, on the basis of claims for maternity services made by GPs for care during the confinement (DHSS form SBE 504), GPs had responsibility for 32.6% and 21.2% of deliveries respectively for the two years in question. Had these proportions been fully taken into account, it is possible that the concentration of births in NHS consultant beds from Tuesdays to Fridays would have been even more accentuated.

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¹ Lloyd, G, *British Medical Journal*, 1975, **1**, 79.

² Bull, M J V, *British Medical Journal*, 1975, **2**, 39.

Return to work after coronary artery surgery for angina

SIR,—Mr J Wallwork and others (16 December, p 1680) report encouraging return to work results in patients after surgical treatment for angina. It is implicit in their report that the improved postoperative return to work experience could be attributed to the benefits of the surgical procedure.

Logue¹ reported that, despite improvement in angina in 90% of patients, only 50% returned to work. Rimm² found that, of men gainfully employed before surgical treatment, 11% of those under 55 years and 26% of those aged 55 years or more retired after surgery. For the older age group this was a retirement rate 11 times that of the normal population. Barnes *et al*³ concluded that, contrary to expectation, rehabilitation benefits of surgical treatment appear to be few. This subject has been reviewed by McIntosh and Garcia.⁴

Why are there such differences in rehabilitation results after surgery? Are they caused by different patient groups, different standards of surgical or drug treatment, different economic motivating factors, different approaches to the analysis of data, or different attitudes to rehabilitation on the part of the doctor?

Of these factors, we believe the attitude of the patient's medical attendant to be by far the most important. Many patients do not work before operation because their physician may exaggerate their disability. The same physician's attitude may be very much more optimistic after dramatic treatment such as heart surgery or he may be instrumental in perpetuating cardiac invalidism. Logue¹ emphasised that the physician may advise the patient not to return to stressful working conditions, despite successful surgery and

despite the difficulties in defining and identifying stress and in evaluating its importance. Barnes³ also noted that doctors may provide insufficient encouragement to return to work. What is the basis of the common diagnosis of intractable angina, a diagnosis which is widely employed to justify disability and to encourage heart surgery? Who decides that the angina is intractable? Why do some physicians and surgeons see more of this than others?

More than 90% of 471 patients under 60 years seen by us returned to work after a first myocardial infarction.⁵ There was no significant difference in the return to work rate of the 173 patients with and the 298 patients without postinfarction angina. Only four of 15 anginal patients who failed to return to work were disabled by chest pain.

This high rate of return to work reflects an active and optimistic approach to rehabilitation with a strong emphasis on risk factor intervention. None of these patients had coronary artery bypass surgery and beta-blockers were used only in a small number of cases, and generally for the treatment of hypertension. With a positive and encouraging approach we have found little difficulty in getting the great majority of coronary patients under 60 years back to work and we have found disabling angina to be a rare problem among them.

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¹ Logue, N, King, S B, I I, Douglas, J S, jun, *Current Problems in Cardiology*, 1976, **1**, 5.

² Rimm, A A, *et al*, *Journal of the American Medical Association*, 1976, **236**, 361.

³ Barnes, G K, *et al*, *Circulation*, 1975, **51** and **52**, (Suppl II), 118.

⁴ McIntosh, N D, and Garcia, J A, *Circulation*, 1978, **57**, 405.

⁵ Mulcahy, R, Hickey, N, Graham, I, *British Heart Journal*, 1976, **38**, 873.

Malnutrition in infants receiving cult diets

SIR,—The malnourished infants whose parents adhered to extreme "health food" cults, as reported by Dr I F Roberts and others (3 February, p 296), supply fresh ammunition on one of the favourite battlefields of nutrition. Ever since kwashiorkor was described by Cicely Williams, it has been associated in lectures and textbooks with "dietary protein deficiency" or "shortage of good animal protein." Yet studies of protein-energy relationships, and of the capacity of plant proteins to supplement one another in food mixtures, demonstrate that pure dietary protein deficiency, without accompanying energy shortage, is comparatively rare.^{1,2} Gopalan,³ studying the diets of children who subsequently developed marasmus and kwashiorkor, was unable to detect a simple dietary protein deficiency in any instance.

Roberts *et al* report on four children. The foods consumed by cases 2, 3, and 4 prior to diagnosis are identical in kind though not in quantity. This implies that the proportion of protein to energy in each diet was the same. Each child was fed small amounts of breast milk, cereals, and legumes: an unexceptionally balanced diet, in protein terms, but clearly short on energy. Case 2 developed marasmic kwashiorkor, cases 3 and 4 marasmus. (Case 1, who also developed kwashiorkor, was fed

breast milk, fruit, and vegetables; a far cry from the stereotype of the starchy low-protein diet.) This example of three children consuming essentially the same foods, but developing clinical signs which span the whole range of marasmus-kwashiorkor, will encourage those workers who look for factors other than specific dietary deficiencies to account for the different types of protein-energy malnutrition.

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¹ Eddy, T P, *Tropical Doctor*, January 1977, 28.

² Waterlow, J C, and Payne, P R, *Nature*, 1975, **258**, 113.

³ Gopalan, C, in *Calorie Deficiencies and Protein Deficiencies*, ed R A McCance and E M Widdowson. London, Churchill, 1968.

SIR,—We were interested to read the excellent article by Dr I F Roberts and others (3 February, p 296) on the effect of cult diets on children, such as the Zen macrobiotic diets.

Zen is a form of religion where great emphasis is placed on meditation, as opposed to theology. This meditation is an alteration to a trance-like state of consciousness caused by practised underbreathing while thinking of a repetitive phrase (mantra). Studies have shown that various physiological and biochemical changes take place during meditation. For example, Wallace¹ showed decreased oxygen uptake during meditation; Jevning² showed an increase in serum prolactin and serum phenylalanine concentrations; while other workers have shown an increased urinary output of 5-hydroxy indoleacetic acid and a decreased output of urinary vanilmandelic acid.³ This suggests that a decrease of brain sympathomimetic amines and a flush of serotonin occurs.⁴ The ancient Vedic writings of India gave explicit rules on food designed for a peaceful meditation, but not for children's nutrition. Thus they forbid foods rich in tyramine, such as fermented cheese, wine, and other fermented drinks. Tyrosine- and phenylalanine-containing foods are to be avoided (for example, meat). Tyrosine, tyramine, and phenylalanine are converted to sympathomimetic amines. It is possible that the extra sympathomimetic amines cause a very "bumpy" meditation. Many meditators who stick to a strict diet complain bitterly and are excessively irritated if they transgress the rigid diet. We believe that the diet was not designed for children.

We wonder also if the parents of these children had difficulty in conceiving while they were meditating regularly, as we have noticed a significant difference in the sex-hormone-binding globulin (SHBG) in such people compared with age-matched normal controls (see table)—the meditators had similar SHBG concentrations to those found

in a sample of six impotent men. The meditators also had a significantly low testosterone:SHBG ratio compared with controls and thus less free testosterone.

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¹ Wallace, R K, *Scientific Research on the Transcendental Meditation Programme*: PhD thesis, 1970.

² Jevning, R, Abstract of the Psychophysiological Society's 57th annual meeting, New York City, June 1975, p 257.

³ Jevning, R, in *Scientific Research on the Transcendental Meditation Programme: Collected Papers*, vol 1, ed D W Orme-Johnson and J T Farrow, p 145. Seelischberg, Maharishi European Research University Press, 1976.

⁴ Bujatti, M, *et al*, *Journal of Neurological Transmission*, 1976, **39**, 257.

The Queensland Melanoma Project

SIR,—The impressively high five-year survival rate obtained for patients with primary malignant melanoma in Queensland was the subject of a recent article by Dr Tony Smith (27 January, p 253). It has been claimed¹ that this is the result of heightened public awareness of the disease and its consequent earlier diagnosis and treatment, and Dr Smith discusses the wider implications of sustained public and professional education, suggesting that a similar approach be adopted to other diseases where delayed treatment might adversely affect the outcome.

So far as melanoma is concerned, however, the data do not convince. Primary cutaneous melanomas arise in the junctional layer and ultimately penetrate down into the deeper structures of the skin, acquiring metastatic potential when the capillaries or lymphatics of the reticular dermis are invaded. Tumours confined to the more superficial papillary dermis, however, carry a much better prognosis.²⁻³ The results obtained from the Queensland Melanoma Project, which Dr Smith quotes, show that, out of 1187 patients with cutaneous melanoma, no fewer than 757 (63%) had primaries invading the reticular dermis (Clark's level 4), whereas only 417 (35%) had more superficial lesions. In contrast, Clark *et al*³ found that 37% of patients attending the Massachusetts General Hospital had melanomas penetrating to level 4 compared with 51% where the tumour was confined to the papillary dermis; and very similar figures were obtained at the Memorial Hospital by Wanebo *et al*³ in a later study. The numbers of patients with tumours invading subcutaneous fat (Clark's level 5), the least favourable microscopical stage, were similar in all three series. At the time of excision, then, primary melanomas tend to be more advanced, biologically if not chrono-

logically, in Queensland than they are in the Eastern United States, yet despite this Queenslanders have the better overall prognosis.

A possible explanation might be that the natural history of the disease is different in the two countries. For a given depth of dermal invasion the incidence of lymph node metastases found at the time of elective block dissection appears to be less in Queensland. Thus Little⁴ found a 15% incidence in primaries invading the reticular dermis as against 25% in Wanebo's series. Where the subcutaneous fat was invaded the difference was even greater—34% versus 70%. If these differences are real they would imply that the better prognosis for primary melanoma in Queensland is in some way related to its lower metastatic potential. I suggest that before these results are cited to justify further health education schemes the possibility that the Queensland success is due to a high incidence of relatively indolent tumours be considered.

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¹ Beardmore, G L, *International Journal of Dermatology*, 1977, **16**, 831.

² Clark, W H, *et al*, *Cancer Research*, 1969, **29**, 705.

³ Wanebo, H J, Woodruff, J, and Fortner, J G, *Cancer*, 1975, **35**, 666.

⁴ Little, J H, *Progress in Clinical Cancer*, 1975, **6**, 163.

Are they being served?

SIR,—I was very glad to see your recent leading article on the importance of the Chronically Sick and Disabled Persons Act (20 January, p 147).

As you point out, general practitioners are busy people. Some may well feel they have enough to do without involving themselves in socioeconomic problems that go beyond their immediate concern. Yet, as you recognise, the GP is often the first point of contact for the severely disabled person, and the doctor is therefore particularly well placed to alert him to a whole range of services and cash benefits which, if he only knew about them, could much improve the quality of his life. In support of the approach taken by your leading article, I should thus like to make a bid for the severely disabled patient to be regarded by the GP as a special case. My aim in so doing is to achieve better communication with the disabled for the purpose of making sure they receive all the help that recent legislation makes available to them.

My department has been giving a great deal of thought to ways of improving take-up of benefits and I am at present studying possible means of ensuring the supply of a better range of posters and pamphlets, including their availability in doctors' waiting rooms. We are in touch with a number of leading voluntary organisations about this. I hope that they, like me, will regard this whole question of information giving as a matter of prime importance. Your help in bringing the matter to the attention of the medical profession will be very widely appreciated.

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SIR,—I read with interest your leading article entitled "Are they being served?" (20 January,

Differences in sex-hormone-binding globulin (SHBG) and testosterone:SHBG ratio in meditators, controls, and impotent men

	No	SHBG*		Probability (t test)	Testosterone:SHBG ratio		Probability (t test)
		Mean	SD		Mean	SD	
Meditating men	7	38.71 ± 15.2	}	<0.05	0.6315 ± 0.258	}	<0.05
Matched controls	16	24.18 ± 4.92			1.058 ± 0.396		
Impotent men	6	38.75 ± 7.62					

*Measured as nmol/l binding capacity of dihydroxytestosterone.