we were allowed two extra meat coupons per week. There was no effective treatment for the generalised oedema, and ascites became very severe and distressing. This could be treated only by paracentesis and this was done at frequent intervals. By the middle of 1943 there was gross generalised oedema, a hemiparesis had developed, and there was a chest infection.

He was seen then by the late Lord Evans—then Dr Horace Evans. Dr Evans advised that the only treatment which might help was a mercurial diuretic. He warned that this might have a fatal effect but that if it was not used the outlook would be very grave. And so 2 ml of Mersalyl preceded by ammonium chloride was injected intramuscularly. The effect was dramatic. There was a tremendous diuresis and within 24 h from being grossly oedematous the patient became almost a skeleton. The hemiparesis also cleared up completely. The condition, however, did not clear up. The oedema recurred and over the next five years almost 300 injections of mercurial diuretics were given, usually once a week but sometimes twice, until in 1948 the symptoms all cleared up following tonsillectomy. Since then the patient has kept well and, in fact, spent 15 months in the Antarctic in 1960-1.

Had steroids been available in 1942 the treatment described in this case would never have been used, but the result confirms Dr Gabriel's point that proteinuria in itself is not injurious provided it is controlled by diuretics.

One interesting fact emerged during this illness. It was noticed that the intake of white meat always increased the urinary output. When we were able to obtain a chicken or a rabbit, although the fluid intake remained constant, the patient's urinary output always increased so that the intervals between the injections of diuretics could be prolonged.

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Prevention of vitamin D deficiency in the elderly

SIR,—We read with interest the study of Dr W J MacLennan and Judith C Hamilton (1 October, p 859) on the effect of low-dose vitamin D supplements on serum 25-hydroxy vitamin D (25-OHD) concentrations in elderly patients. As part of an assessment of the role of vitamin D-fortified foods in the prophylaxis of vitamin D deficiency in the elderly we carried out similar dose-response studies. Table I shows that in long-stay elderly hospital patients the equivalent of 10 µg of vitamin D daily for six months will produce significant increments in serum 25-OHD; correspondingly larger increments are produced with increasing dose levels. We agree with the authors that simple vitamin D deficiency in the elderly can be corrected by conventional prophylactic intakes of about 10 µg of vitamin D daily. The efficacy of conversion to 1,25-dihydroxy vitamin D in the elderly remains to be assessed and may be important in the development of senile osteomalacia.

Since the regular administration of vitamin D supplements to large numbers of elderly patients may be difficult, enhancement of the ultraviolet (UV) component of ward lighting offers a potentially more reliable method of augmenting vitamin D intake. Vita-lite (True-lite in UK) fluorescent tubes (Duro-Test Corporation, New Jersey) have an emission spectrum similar to that of solar radiation. Neer *et al*¹ found that calcium absorption was significantly increased in elderly patients exposed to Vita-lite for eight hours at high

TABLE I—Response of serum 25-OHD concentration to a fortnightly vitamin D supplement given to long-stay geriatric patients for six months

Vitamin D supplement (calciferol, BP)	Mean serum 25-OHD concentration (± SE of mean) (nmol/l)		
	Initial	Final	P
1.75 mg fortnightly (≈ 5000 IU daily) (n = 10) ..	14.5 ± 1.05	93.35 ± 11.7	<0.001
350 µg fortnightly (≈ 1000 IU daily) (n = 17) ..	16.4 ± 1.25	40.4 ± 2.65	<0.001
140 µg fortnightly (≈ 400 IU daily) (n = 75) ..	21.1 ± 1.45	34.2 ± 3.6	<0.001

Conversion: SI to traditional units—25-OHD: 1 nmol/l ≈ 0.4 µg/ml.

TABLE II—Ultraviolet irradiance of different sources of illumination (as measured by a portable spectral radiometer)

Source of UV illumination	Irradiance (mW/m ²)	
	300-320 nm	320-380 nm
Window-filtered UV (January 1977), geriatric ward ..	0.7	106
True-lite tubes, geriatric ward ..	2.2	21
Warm white tubes, geriatric ward ("conventional" fluorescent lighting) ..	4.9	10
Outdoors, January 1977, Glasgow ..	21	995
Outdoors, May 1977, Glasgow ..	935	8400
Study of Neer <i>et al</i> ¹ (estimated) ..	60	600

levels of illuminance (538 lx (500 ft candles)), about 10 times that of normal room lighting in the USA. We have exposed eight elderly patients to True-lite tubes for 16 hours daily at normal hospital levels of illumination (16 lx (15 ft candles)). Over periods ranging from two weeks to six months (mean two months) levels of serum 25-OHD showed an insignificant mean rise (± SE of mean) of 2.25 nmol/l ± 2.75 (0.9 ± 1.1 ng/ml). This result is perhaps not surprising when the measured spectral irradiance of the True-lite tubes at this level of illumination is compared with that of summer sunlight (table II). Indeed, normal warm white fluorescent tubes have about twice the irradiance in the antirachitic range (290-320 nm) at the same level of illumination. The intense illumination employed by Neer *et al* is impracticable in a geriatric ward and there is some evidence,² albeit in pigeons, that high levels of fluorescent illumination may cause retinal damage. We are undertaking further studies with normal lighting supplemented by UV irradiation in the 280-320 nm range within maximum permitted exposure limits.

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¹ Neer, R, *et al*, *Nature*, 1971, **229**, 255.

² Marshall, J, *et al*, *Experimental Eye Research*, 1972, **14**, 164.

Incidence and mortality of acute pancreatitis

SIR,—Mr M J McMahon (19 November, p 1350) comments on the incidence of acute pancreatitis and reports an incidence for Leeds of 110 cases per million population for the year 1976. The incidence in the Notting-

ham defined population¹ area, when diagnostic criteria similar to those used in Leeds are employed, varied fivefold during the eight years 1969-76 from a peak incidence of 100.0 per million population in 1975 to a low incidence of 21.2 per million in 1970. Assessment of severity of the disease suggests that more of the same spectrum of the disease is seen rather than an excess of mild cases in high-incidence years and a deficiency in low-incidence years. It may be that similar fluctuations occur in Leeds, as Trapnell and Duncan² recorded similar variations in Bristol. However, the mean incidence of 53.8 per million for Bristol for 1961-7 is of a similar order to the mean incidence of 56.9 per million for the Nottingham defined population area for the period 1969-76. A longer period of study in Leeds may produce different results.

I agree with Mr C W Imrie's comments (19 November, p 1350) that care should be taken in extrapolating from regional surveys to national statistics, and he has well pointed out that Glasgow has a high incidence of acute pancreatitis.³ However, I cannot agree with his comments about mortality. The mortality from any disease is made up from those in whom the diagnosis is made in life and those in whom the diagnosis is made only at necropsy. In the total Nottingham series during the period 1969-76 (see table) the overall mortality was 16.3%. However, these

Diagnosis in life and at necropsy and mortality in primary acute pancreatitis in the total Nottingham series, 1969-76¹ (n = 332)

Diagnosis made in life ..	310 (93.4%)
Diagnosis made at necropsy ..	22 (6.6%)
Mortality when diagnosis made in life ..	32 (10.3%)
Overall mortality ..	54 (16.3%)

figures deserve closer analysis. In the total series the diagnosis was made only at necropsy in 22 cases (6.6%) and careful analysis of the medical records showed that the clinicians caring for the patient did not suspect the diagnosis during life. This group was characterised by being unwell at home for typically more than three days before admission to hospital. If only the patients in whom the diagnosis was made during life are considered, and these are the patients who may be assumed to have had adequate management, the mortality was 10.3%. In Pollock's series of 100 patients with acute pancreatitis⁴ nine were

incorrectly diagnosed until necropsy and the overall mortality was 25%. Trapnell⁵ reported that in 6% of his series of 590 patients with acute pancreatitis the diagnosis was made only at necropsy and the overall series mortality was more than 20%.

Thus in any analysis of mortality in primary acute pancreatitis it is important to differentiate between patients in whom the diagnosis is made at necropsy and those in whom it is made during life. Mr Imrie³ and others⁶ have shown that in trials of various therapeutic regimens there is a mortality of about 10%, but these patients are only those who had the diagnosis made in life. Mortality from acute pancreatitis will always be higher than people think is acceptable clinical practice until we can diagnose all cases in life and undertake appropriate early treatment. This distinction is important and must be fully appreciated and acknowledged when making comparisons between different series. Alas, this distinction is not always appreciated,^{7,8} which may explain some of the confusion about mortality in acute pancreatitis.

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¹ Bourke, J B, *Lancet*, 1975, 2, 967.

² Trapnell, J E, and Duncan, E H L, *British Medical Journal*, 1975, 2, 179.

³ Imrie, C W, et al, *Gut*, 1977, 18, A957.

⁴ Pollock, A V, *British Medical Journal*, 1959, 1, 6.

⁵ Trapnell, J E, *Clinics in Gastroenterology*, 1972, 1, 147.

⁶ Cox, A G, et al, *Lancet*, 1977, 2, 632.

⁷ *British Medical Journal*, 1973, 4, 503.

⁸ *Lancet*, 1975, 1, 205.

Alpha-fetoprotein in antenatal diagnosis of neural tube defects

SIR,—Dr R Carachi (19 November, p 1357) raises a number of important issues with respect to both screening for and diagnosis of neural tube defects by α -fetoprotein (AFP) measurements. His comment that "the decrease in the numbers of babies born with spina bifida is still not evident in those centres that have to manage these deformities" is perhaps not fair, since no health authority has yet adopted wide-scale screening as an aspect of routine antenatal care. By a curious irony the only place where there has been a clear demonstration of a decrease in the incidence of neural tube defects is in Dr Carachi's home town of Glasgow. Professor Malcolm Ferguson-Smith (*Scotsman*, 1 December) has shown a dramatic decrease in the birth incidence of both spina bifida and anencephaly since the introduction of screening into the Strathclyde Region. This would appear to justify the hopes that many of us have held out for a real reduction in incidence of these appalling disorders as soon as anyone had courage to apply the AFP test on the scale for which it was designed. Naturally it will remain an incomplete test for as long as a proportion of mothers fail to attend booking clinics before the 20th week of their pregnancy. Screening will also not detect closed neural tube defects, which may represent 5-10% of the total, but this is not reckoned to be disadvantageous since the majority of these can be repaired surgically and have a good prognosis.¹

Nobody who has used amniotic fluid AFP in early antenatal diagnosis of neural tube defects would deny that there is a danger of false-positive determinations. The case which we reported in our article (8 October, p 934) was the first incorrect diagnosis we had made in a series of over 1500, during which time

some 72 cases of neural tube defect had been correctly diagnosed. This gives a false-positive rate of less than 0.1%, a figure which has been confirmed in other larger studies.² We cannot see how a false-positive rate at this level calls in question the whole value of screening. Furthermore, Dr Carachi seems to have missed the point of our article, which was to show that if rapidly adherent (RA) cell morphology is used together with amniotic fluid AFP the false-positive rate should be even lower.

It has been conceded for some time that an elevated AFP concentration in the amniotic fluid is not specific to a neural tube defect. However, most of the fetal conditions known to be associated with increased values are serious.³ We would take issue with Dr Carachi's comment that exomphalos and gastroschisis are treatable conditions. This is a gross over-simplification. For example, the incidence of associated malformations in cases of exomphalos ranges from 52% to 79% and in at least 20% of the cases the other malformation is anencephaly.⁴ Where RA cell morphology has maximum potential is in the discrimination between simple and treatable malformations and those which are more complex.⁵⁻⁷

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¹ Laurence, K M, *Lancet*, 1974, 2, 939.

² *Prenatal Diagnosis of Genetic Disorders of the Fetus*, ed J Lindsten et al. Paris, INSERM, 1976.

³ Brock, D J H, *British Medical Bulletin*, 1977, 32, 16.

⁴ Warkany, J, *Congenital Malformations*. Chicago, Year Book Medical Publishers, 1971.

⁵ Gosden, C, and Brock, D J H, *Lancet*, 1977, 1, 919.

⁶ Gosden, C, et al, *Clinical Genetics*, 1977, 12, 193.

⁷ Brock, D J H, and Gosden, C, *Lancet*, 1977, 2, 1168.

SIR,—I would like to endorse Mr R Carachi's views (19 November, p 1357) on the worrying cases of false-positive elevated α -fetoprotein levels. I recently had a hydramniotic pregnancy with what were described as "upper normal" α -fetoprotein levels and the anxiety caused by the lack of objective evaluation of the biochemical results was extremely distressing for all concerned. We were spared the predicament of considering termination as results did not become available until 30 weeks, but in view of the happy eventual outcome the possibility of termination is terrifying.

If a scheme for universal α -fetoprotein screening is to be introduced it must be at an early enough stage to allow time not only for checking ambiguous results but also for the family involved to decide about termination before this becomes legally and gynaecologically difficult.

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ECT and the media

SIR,—Dr J F Anderson (3 December, p 1478) is difficult to please. I had hoped that by demonstrating that opinions in favour of ECT are occasionally presented on television it would overcome his belief that the media only present adverse publicity for the treatment. Now he shifts his ground. He apparently admits that a range of views of medical topics can be found on television but he is only

content if conflicting views are to be found in the same programme. Further, he seems to believe that because my quotes from an "Inside Medicine" programme on ECT were favourable to the treatment the programme as a whole was biased. This is not the case. It was actually a balanced programme—I merely quoted the favourable bits to counter-balance Dr Anderson's quotes from "Panorama." In fact the programme also included the following quotes:

Narrator—"In America, and notably in California, opposition to ECT has now reached the point where legislation is making it virtually impossible for doctors to use ECT, even when patients demand it."

Narrator—"ECT in the early days was a distressing business. In this film, taken in the 1950s, ECT is being given without any anaesthetic or drugs to relax the muscles. The convulsion under these conditions could be very violent, and broken teeth and spinal fractures were not uncommon. This is the image of ECT that has lingered on and is perhaps responsible for present-day misgivings about the treatment. In *The History of Shock Treatment*, a recent publication from an anti-ECT group in America, ECT is certainly presented as a sort of licensed torture."

Narrator—"The most troublesome part of having ECT is that it can cause loss of memory. This is thought to be temporary, though no one is yet quite sure about the long-term effects. . . . Ernest Hemingway was given ECT shortly before his suicide, and he objected violently to the way his memory was affected. He said that ECT would ruin his career as a writer. . . . This girl had 36 ECTs over a period of 2½ years. She still feels strongly about the memory loss."

Patient—"It's acute, I mean, I couldn't remember who I was sometimes, where I was, what day it was, and as to where I was, why I was there. That was very frightening, and not knowing why I was there in the place I was in. Why I was sitting there. Why I'd such a headache and why I couldn't remember anything. Not being able to, everything, sort of being out of perspective, then going back to the ward at the hospital and not remembering any faces or names and having to ask people who they were again, that happened quite often, and you know quite often the other people on the ward came to expect it really of everybody. But I should say that I think it's one of the most frightening things that's ever happened."

Narrator—"Now obviously any treatment which has bad side effects shouldn't be used unless the side effects are outweighed by the benefits. One of the main worries of the critics of ECT is that doctors aren't careful enough about this—that they use ECT when it's not really necessary. . . . This report on St Augustine's Hospital near Canterbury concluded that ECT was being used casually and without proper supervision, and sometimes without the full consent of the patients. And the Health Service Commissioner—whose report came out last month—found that a patient had been given ECT totally against his wishes. His hand had been guided to write his signature on the consent form, and when he tore up the form it was stuck together again. There is no way of knowing whether or not such cases are the tip of an iceberg, but it does seem that ECT is used more frequently than it need be."

Contributor—"There's very wide variations in the use of ECT as between one hospital and another; for instance, in the Home Counties two hospitals side by side, one uses ECT perhaps four or five times a year; in the other hospital some 60% of patients are treated with ECT. Results from both hospitals tend to be similar so it would seem that despite enormous variations in the use of ECT the outcomes are not all that different. Therefore in our view perhaps more care should be taken in the use of ECT and it could be used much more sparingly in some hospitals than it is at present."

Doctor—"Well, I think it's reasonable to object if ECT is used on a pretty automatic basis, I mean, there are unfortunately a number of hospitals even in this country which seem to run on the