to the disease factor, to tissue response, and to drug delivery at the target site.

May I suggest that the problem is further complicated by that fourth dimension, time? By that I mean the time of administration in relation to the subject's biological rhythm. There is a definite variability in drug utilization according to the phase of the individual diurnal cycle. Plasma levels would therefore be even more helpful if they could be related to the patient's daily rhythm.—I am, etc.,

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More about D and V

SIR,—Acute transient attacks of diarrhoea and vomiting are so common in general practice that it would be surprising if there were no precise figures for their incidence, and it is perhaps a little misleading to suggest (leading article, 5 October, p. 1) that information is lacking on this side of the Atlantic.

The symptom complex is not always easy to define, but intestinal infectious disease, including food poisoning, dysentery, enteritis, and diarrhoea, has been notified weekly to the Birmingham Research Unit of the Royal College of General Practitioners since 1965. Data from 40 reporting practices are thus available for examination for seasonal and other trends. Further information on the incidence and prevalence of intestinal infections (I.C.D. 003-009) and acute vomiting and diarrhoea (I.C.D. 784.1) is derived from routine analyses of diagnostic indexes maintained in research practices throughout the country.

The most up-to-date figures for episodes of illness under the above rubrics are in the first report of the second National Morbidity Survey¹ carried out by the Royal College of General Practitioners, the Office of Population Censuses and Surveys, and the Department of Health and Social Security. Every relevant episode occurring in one year in over 50 practices was recorded. Taking the two rubrics together there were 51.7 episodes of illness per 1,000 population as against 260.2 episodes of disease of the upper respiratory tract. Episodes occurred most often in northern England and in Wales.

The nature and cause of "D and V" has not been overlooked by general practitioners in Britain^{2,3} and Australia,⁴ and others have been concerned with its treatment.⁵⁻⁷ Epidemic winter vomiting came under scrutiny both by individuals and by the Epidemic Observation Unit of the Royal College of General Practitioners⁸ as far back as the 1950s.

What are the implications of observations in general practice for others who seek to discover possible causes? That "D and V" affects travellers overseas and that it often occurs when patients move from one place to another in Britain is well known. Incidence among new entrants to practices can be observed. Practitioners, too, are aware that exposure to new environmental factors may precipitate episodes in newcomers and they seek to identify ingested factors which may act directly or indirectly by altering the viral status of tissues.

For the moment it may comfort the laboratory worker to know that he may turn to general practice for epidemiological help

and, if he wishes, for sample material from patients with an affliction the existence of which the practitioner has never doubted.—I am, etc.,

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Further Application of the Nitroblue Tetrazolium Test

SIR,—We note the comments by Drs. A. W. Segal and A. J. Levi (7 September, p. 629) regarding the use of the nitroblue tetrazolium N.B.T. test as an aid to differentiation of lobar pneumonia from pulmonary thromboembolism. While we agree that the frequency of false results diminishes the value of the test in distinguishing bacterial infection from other pyrexial disorders, in our experience there remain certain specific clinical situations in which the technique is of diagnostic assistance. These include chronic granulomatous disease,¹ early detection of bacterial infection in regularly dialysed patients,² and the differentiation of episodes of rejection from infection in renal transplants.^{3,4}

The adoption of strict criteria for the definition of neutrophil N.B.T. positivity has largely overcome observer differences in counting. Our criteria of positivity include: the counting of only those neutrophils with intact membranes; intracytoplasmic formazan deposits must equal or exceed individual neutrophil lobe size; formazan stippling is rated as negative. The use of Ficoll in samples anticoagulated by EDTA minimizes cell clumping and membrane disruption.⁵

We agree that raised N.B.T. results occur following myocardial infarction⁶ and surgical operation.⁷ This was very much in our minds in our own series (3 August, p. 317). The reference by Drs. Segal and Levi to "a group of patients, most of whom were postoperative or post-partum with pulmonary thromboembolism" is inaccurate. One patient had undergone minor surgery seven days prior to the development of the embolic incident. One patient developed pulmonary thromboembolism five days following myocardial infarction. In both instances the diagnosis of pulmonary thromboembolism was angiographically proved. No post-partum patient was included in our series. We note their comments regarding the validity of this trial. We do not consider, however, that this is a situation in which control in the usual sense can be applied.

We agree that the initial enthusiasm for this test as an indication of bacterial infection has not been fulfilled.^{8,9} We do, however, maintain the view that the N.B.T. test provides useful ancillary information in the

context of pulmonary thromboembolism versus lobar pneumonia.—We are, etc.,

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A. M. GORDON

A. K. R. CHAUDHURI

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- 1 Baehner, R. L., and Nathan, D. G., *Blood*, 1966, **28**, 1010.
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Transthoracic Electrical Impedance in High-altitude Hypoxia

SIR,—In their interesting article on high-altitude pulmonary oedema (28 September, p. 771) Professor S. B. Roy and others found a consistent increase in transthoracic electrical impedance while clinical improvement occurred.

They felt that this "decrease in impedance values could not be correlated objectively with increased thoracic fluid volume as shown by changes in pulmonary blood volume or pulmonary extravascular space." There must, however, be little doubt that thoracic fluid volume does decrease with clinical improvement, as in his report of 101 cases of high-altitude pulmonary oedema followed radiologically Menon¹ found progressive clearing of the lung fields with treatment in the 97 patients with a successful outcome.—I am, etc.,

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- 1 Menon, N. D., *New England Journal of Medicine*, 1965, **273**, 66.

False Positive Pregnancy Test in Uraemia

SIR,—We would like to record two cases of uraemia which presented with clinical features suggestive of a septic incomplete abortion. The Gravindex pregnancy test gave a positive result which on further study proved to be a false positive result. Details of the two cases are as follows.

The first patient, an African woman aged 33 years, was admitted with a history of headache, weakness, and malaise for four days. Physical examination revealed an ill, toxic, pyrexial patient. There was pallor of the mucous membranes with mild icterus. The blood pressure was 180/120 mm Hg, and the apex beat in the sixth interspace outside the midclavicular line and heaving in character. Bilateral basal crepitations were present. Soft exudates present in the optic fundi. Other systems were normal. Investigations: urine contained a trace of albumin and more than 10,000 *Escherichia coli*/ml, blood urea 130 mg/100 ml, serum sodium 135 mEq/L, serum potassium 2.9 mEq/L, serum chloride 93 mEq/L, CO₂ combining content 14.1 mEq/L, serum bilirubin 3 mg/100 ml, serum alkaline phosphatase 4 KA units, serum albumin 3.6 g/100 ml, serum globulin 4.7 g/100 ml, blood sugar 115 mg/100 ml, serum creatinine 6.5 mg/100 ml. The Gravindex pregnancy test was positive on three occasions and on the last occasion the quantitative test was positive at a level of 7,000 IU/l. A chest x-ray showed cardiomegaly with congested lung fields.

A high-dose intravenous pyelogram showed normal sized kidneys.

The patient remained anuric, and in view of the positive pregnancy test she was seen by a gynaecologist to exclude a septic incomplete abortion as pus was draining from the vagina. The gynaecologist did not find any features to suggest pregnancy on pelvic examination but because the pregnancy test remained positive a diagnostic curettage was done. The patient developed a cardiac arrest during the procedure, from which she was resuscitated. Curettings showed endometritis of the uterus but no retained products of conception. The pregnancy test remained positive after the diagnostic curettage and returned to normal only on the day of the first haemodialysis, which was necessary because of a rising blood urea. Haemodialysis was necessary on seven separate occasions and the patient was treated with cephalothin 1 g every four hours with gentamicin 30 mg twice a day intramuscularly. The urine output improved and the blood urea stabilized at a level of 60 mg/100 ml with haemodialysis. A renal biopsy on recovery showed that the patient had features of chronic renal failure. The patient was maintained on an outpatient basis on a low-protein diet and methyl-dopa 500 mg twice a day. We felt that the patient had suffered from acute on chronic renal failure which was precipitated by the urinary infection.

The second patient, an African woman aged 40 years, was admitted with a history of amenorrhoea for three months. She had visited a herbalist for the amenorrhoea and was given herbal medicine. One week later she became mentally confused and was admitted to hospital. Physical examination showed a confused, drowsy patient with a flapping tremor of her hands. A foul-smelling vaginal discharge was present. The blood pressure was 190/140 mm Hg and the optic fundi showed soft exudates with early papilloedema. Investigations: blood urea 254 mg/100 ml, serum creatinine 8.5 mg/100 ml, serum sodium 136 mEq/l, serum chloride 94 mEq/l, serum potassium 4.5 mEq/l, CO_2 combining content 14.5 mEq/l, serum lactic dehydrogenase 260 units (normal 24-78 units), blood Wasserman negative, serum bilirubin 0.5 mg/100 ml, total protein 5.9 g/100 ml, serum albumin 3.0 g/100 ml, haemoglobin 6.3 g/100 ml, erythrocyte sedimentation rate (Westergren) 46 mm in 1 hr, leucocyte count 15,000/mm³, blood culture negative, serum calcium 6.4 mg/100 ml, serum phosphate 8.0 mg/100 ml. The urine contained a trace of albumin. The Gravindex pregnancy test positive at a level of 4,000 IU/l. The patient underwent haemodialysis on four separate occasions and 17 days after admission the pregnancy test returned to normal. The patient was suffering from chronic nephritis as a high-dose intravenous pyelogram showed small shrunken kidneys.

Uraemia due to chronic renal failure can produce false positive pregnancy tests with the Gravindex method owing to a disturbed immunological state, as was observed in two cases by Kerr.¹ However unlike the experience of Kerr,² in both our cases the false positive pregnancy test returned to normal. The false positive pregnancy test in our cases was not related to gross proteinuria as has been observed by Kew *et al.*³ because in both our cases there was only a trace of albuminuria. In our environment, where criminal abortion is common, a positive pregnancy test in uraemic patients should be regarded with caution as a patient may wrongly resort to this procedure for amenorrhoea which may be due to chronic renal failure. We have not observed a false positive pregnancy test in acute renal failure and this may be because a disturbance in the immunological state may require a period of time to develop. A study of the incidence of false positive pregnancy tests in uraemia is in preparation.—We are, etc.,

D. NORTH-COOMBES

Y. K. SEEDAT

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¹ Kerr, D. N. S., in *Recent Advances in Medicine*, ed. D. N. Baron, N. Compston, and A. M. Dawson, p. 277. Edinburgh and London, Livingstone, 1973.

² Kerr, D. N. S., personal communication, 1974.

³ Kew, M. C., Seftel, H. C., and Bloomberg, B. M., *Lancet*, 1967, 1, 902.

Help for House Purchase

SIR,—I have recently attained the august heights of a consultant appointment, a decade after final M.B. During the past few months, like many others, I have had a great deal of difficulty in obtaining a mortgage and finding a suitable house. After overcoming a number of problems in selling my own property we have at long last moved into our new home, hardly the sort of house that a consultant would have bought a few years ago, but then who could have predicted the enormous increase in house prices? My disposable income is consequently meagre and indeed I am little better off financially than I was as a senior registrar. At least we have a house now and we had a house to sell. I cannot imagine that all hospital doctors will have this comfort, and if there are any who stay in hospital medicine long enough to reach consultant status their situation may be considerably worse than mine.

My reason for writing is not merely to repeat problems that have been stated in your columns but to draw attention to

possible financial aid in house purchase, which from personal experience and the experience of several recently appointed consultant colleagues is not widely known. I refer to a scheme whereby a salary advance may be obtained by officers who take up new posts necessitating removal of their homes and who have difficulty owing to lack of capital in arranging house purchase in the area of their new headquarters. The maximum amount of the advance from salary, recoverable over a period of not more than 10 years, is £4,000 for officers moving from the provinces into an area which attracts London weighting and for other moves a maximum of £3,500. Details are set out in memorandum H.M.(71)89, which has recently been amended by advance letter (P2D) 4/74.

In these stringent times newly appointed consultants and other hospital medical and dental staff should be aware of this scheme.—I am, etc.,

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Government and Profession

SIR,—I am very concerned on reading the papers to learn that following Mrs. Castle's pronouncement on phasing out private beds in the National Health Service hospitals, senior doctors are to work to rule etc. It is understandable that consultants should be angry at this latest piece of stupidity, but we must be realistic about this thing and we must not dissipate our energies. It is probably unrealistic to expect to change the policy of the Government. This piece of cant has been built into the doctrine of the Labour Party for so long that it has become almost an article of faith. This Government is returned with a narrow majority and there are many stresses within the party. They must have something to throw to the left wing—and we are the sacrificial lamb.

Let us then argue on the lines which are clear to all members of the Labour Party and the trades unions. The employer has unilaterally changed the conditions of service of a large number of workers. Therefore we want two things—firstly, compensation for loss of earnings, and secondly, a new contract. I would have thought from my observations of the industrial scene that a tax-free payment equal to three years of income from private practice would be a suitable sort of compensation for loss of earnings. This figure could readily be obtained for each individual from his income tax returns. As to a new contract, why not the same as everybody else—35 hours, five-day week as the basic week with payment at overtime rates for everything else.

I am willing to strike for this but not for a lost cause. While the Government does not want to see the National Health Service collapse, the antics of the doctors could well distract attention from many other sensitive areas at this time.—I am, etc.,

A. F. BUSHBY

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reason for doing so must have been her feeling that if she did not, the nurses would.

I myself feel that private practice should be separated from the National Health Service and I would certainly never willingly take part in industrial action on this relatively trivial issue. However, the one and only purpose of a Secretary of State for Health at the present time must be to find ways of raising the very large sums of money which are needed to keep the Health Service going and prevent its collapse. The issue which Mrs. Castle has raised should certainly not be answered by strike action or anything like it; it should be laughed out of court as being irrelevant to our present problems.—I am, etc.,

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SIR,—It seems to me that the time has come to stop tinkering with current methods of financing the N.H.S. which are at the mercy of "stop-go" policies of alternative governments. With the current unrest in the N.H.S. the golden opportunity presents itself to take the whole organization out of the political field and run it as a corporation to be financed out of the revenue from tobacco, beverages, both alcoholic and otherwise, and sweets. Should this be insufficient the difference could be made up from regular lotteries and the whole affair made flexible enough for the finances to be on a sound basis.

This solution would have the added advantage that deleterious habits would be being taxed to some directly useful purpose.—I am, etc.,

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SIR,—Mrs. Castle has chosen the wrong time to bring up the question of private practice in the Health Service. Part of her

SIR,—In all this turmoil over the phasing-out of private beds in State-owned hospitals