Coombs test negative. There was a gross deficiency of erythrocyte G-6-PD. The patient was transferred to another job. After a month the blood findings had returned practically to normal; the urine contained no urobilin; and the serum bilirubin was 0.5 mg/100 ml.

We believe that the acute haemolytic crisis in this patient was due to nalidixic acid. The patient had not eaten broad beans nor taken any haemolysing drugs, nor had he come into contact with any other haemolysing substances in his work. We record this case to draw attention to the importance of G-6-PD-screening in subjects who are occupationally exposed to nalidixic acid or other haemolysing drugs.—We are, etc.,

L. ALESSIO
G. MORSELLI

Clinica del Lavoro,
University of Milan

- 1 Belton, E. Margaret, and Vaughan Jones, R., *Lancet*, 1965, 2, 691.
- 2 Mandal, B. K., and Stevenson, J., *Lancet*, 1970, 1, 614.

E.B. Virus and Multiple Sclerosis

SIR,—The hypothesis that multiple sclerosis is a late manifestation of an infectious disease common in childhood was introduced by Poskanzer and colleagues.¹ Since then more than 30 virus antigens have been used to test antibodies in serum specimens from patients with multiple sclerosis and control subjects. Many studies have indicated that antibodies to measles virus are slightly but consistently raised in patients with multiple sclerosis compared with controls. The hypothesis implies that all viruses are suspected if they are able to cause persistent cell infection and can penetrate the central nervous system.

Epstein-Barr virus is known to cause relatively mild infections in children² and infectious mononucleosis in adolescents³ sometimes complicated by inflammation of the central nervous system.⁴ E.B. virus antibodies have not been studied earlier in this connexion. We therefore compared the titres of E.B. virus antibodies in serum specimens from 52 patients with multiple sclerosis, from 39 of their siblings, and from 52 carefully selected controls matched for age, sex, and place of residence to reveal the possible differences in antibody levels between the groups. Antibody titres to herpes simplex, varicella-zoster, and measles virus were also included in the results.

Antibodies to E.B. virus were tested by Henle's indirect immunofluorescence technique.⁵ Complement fixing antibodies to other herpesviruses and haemagglutinating antibodies to measles virus were tested as described.⁶ The results expressed as mean titres are shown in the Table.

Test	Geometric Mean		
	Multiple Sclerosis	Siblings	Controls
Measles H.I. . .	38.4*	28.8	26.7
Herpes C.F. . .	23.6	30.4	18.0
Zoster C.F. . .	4.2	4.4	4.2
E.B.V. F.A. . .	187.2	175.7	186.6

* The difference compared with the controls is statistically significant ($P < 0.05$)

The only statistically significant difference is seen in the measles H.I. test. The results do not indicate any connexion between the

herpesviruses, including E.B. virus, and multiple sclerosis.—We are, etc.,

JUKKA NIKOSKELAINEN
MARTIN PANELIUS
AIMO SALMI

Department of Virology and Department of
Neur. logy,
University of Turku,
Finland

- 1 Poskanzer, D. C., Schapira, K., and Miller, H., *Lancet*, 1963, 2, 917.
- 2 Henle, G. and Henle, W., *Journal of Infectious Diseases*, 1970, 121, 303.
- 3 Henle, G., Henle, W., and Diehl, V., *Proceedings of the National Academy of Sciences, U.S.A.*, 1968, 59, 94.
- 4 Silverstein, A., Steinberg, G., and Nathanson, M., *Archives of Neurology*, 1972, 26, 353.
- 5 Henle, G. and Henle, W., *Journal of Bacteriology*, 1966, 91, 1248.
- 6 Panelius, M., et al., *Acta Neurologica Scandinavica* (in press).

Source of Contamination in Haemodialysis Equipment

SIR,—We wish to report a potential source of bacterial contamination in haemodialysis equipment using an external electrolyte standard. This was discovered while investigating a patient on intermittent haemodialysis who became pyrexial towards the end of each dialysis. Repeated blood cultures were sterile but *Pseudomonas aeruginosa* and *Alcaligenes* sp. were isolated from the dialysate entering the dialyser. The dialysate was supplied from a Lucas proportionating system which was disinfected between dialyses with formalin. Dialysate taken from the header tank contained both organisms but they were not isolated from the water or the concentrated dialysate supply. The organisms were also isolated from the external electrolyte standard which surrounds an electrode and is contained in a test-tube suspended in the header tank. When the test-tube is emptied or filled the electrode is frequently placed directly in the header tank, a procedure that would permit transfer of micro-organisms.

The electrolyte standard was prepared in the chemical pathology department using glucose-free concentrated dialysate and deionized water and was distributed in 500-ml glass-stoppered stock bottles. *Ps. aeruginosa* and *Alcaligenes* sp. were isolated from the electrolyte standard stock bottle of the patient under investigation and of another symptomless patient. All the strains of *Ps. aeruginosa* were indistinguishable by pyocine typing.

These findings suggest that the dialysate in the header tank became contaminated by the electrolyte standard solution. The standard is now distributed in 1-oz (28-ml) universal bottles and autoclaved before use.—We are, etc.,

R. Y. CARTWRIGHT
B. L. RADFORD

Public Health Laboratory,
Exeter, Devon

Interaction of Benzodiazepines with Tricyclic Antidepressants

SIR,—We were interested that Dr. M. Orme and others (9 September, p. 611) found that benzodiazepine drugs had no significant effect on plasma levels of warfarin. Their findings are pertinent to a study we have just completed to investigate possible interactions between various tranquillizing and hypnotic

drugs and the steady-state plasma levels of tricyclic antidepressants. Twelve psychiatric patients were studied and in none could we detect a significant alteration in the plasma level of nortriptyline attributable to benzodiazepine drugs. The drugs given were nitrazepam, chlordiazepoxide, diazepam, and oxazepam.

We did, however, demonstrate a lowering of plasma nortriptyline level in a smaller number of patients who were given amylobarbitone. This is in accord with earlier work showing that barbiturates induce hydroxylating enzymes causing increased metabolism of tricyclic drugs and resultant lowering of the steady state level.^{1,2}

We obtained puzzling results in a small number of patients who were given benzocetamine. The studies were too few to be more than only suggestive at this stage of a possible complex interaction. We feel that our results reinforce the conclusion of Dr. Orme and his colleagues that benzodiazepine drugs in man are remarkably free from interaction effects. We feel therefore that when anxiolytics are necessary in addition to tricyclic antidepressants they should be of this group and that nitrazepam should be the hypnotic of choice, particularly in depressed patients.—We are, etc.,

GERALD SILVERMAN

University Department of Psychiatry,
Sheffield

ROBIN BRAITHWAITE

New Cross Hospital,
London S.E.14

- 1 Hammer, W., Idström, C. M., and Sjöqvist, F., in *Antidepressant Drugs*, ed. S. Garattini and M. N. G. Dukes, p. 301. Amsterdam, Excerpta Medica, 1967.
- 2 Alexanderson, B., Evans, D. A. Price, and Sjöqvist, F., *British Medical Journal*, 1969, 4, 764.

Nutritional Rickets in Immigrants

SIR,—Dr. J. A. Ford and others (19 August, p. 446) have drawn our attention to a situation which has concerned us for some time. We disagree with their conclusions that the high phytate content of unleavened bread is the major cause of late rickets and osteomalacia in Pakistani and Indian communities in Glasgow. They did not mention any of the well-established criteria for the diagnosis of osteomalacia such as clinical features, discovery of vitamin D and calcium deficiency in the diet, radiological and histological findings, and the exclusion of renal disease or malabsorption by appropriate tests. The serum calcium was not corrected to its protein concentration and there was no mention of serum alkaline phosphatase in healthy children of comparable age. Part of the rise in the serum alkaline phosphatase in their children could have been due to the pubertal spurt of growth.¹

Clearly calcium and phosphorus balance investigations would be necessary to determine the response to a chupatty-free diet and to implicate phytates in the aetiology of osteomalacia. Failing those, estimation of urinary calcium and total hydroxyproline excretion and data on the growth of these children during seven weeks' treatment would have provided some useful indication of healing bone disease. The authors do not mention low intake of calcium through the soft drinking water in Glasgow, which could be of significance in immigrant children with