Miss Round.² We await the estimations of vitamin D levels to be completed on random samples from children in our survey. Maybe we shall be shown to be wrong, but in view of the marked difference between the heights and weights of our treated children and the control groups and the correlation of vitamin D levels with serum alkaline phosphatase found in Asians by Dr. O'Riordan and his colleagues³ we doubt it. A full report on the effects of treatment and on alkaline phosphatase levels will be submitted for publication shortly.—We are, etc.,

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P. ASQUITH

- 1 Holmes A. M., Enoch, B. A., Taylor, J. L., and Jones M. E., *Quarterly Journal of Medicine*, 1973, 42, 125.
- 2 Round, J. M., *British Medical Journal*, 1972, 3, 114.
- 3 Preece, M. A., et al., *Lancet*, 1973, 1, 907.

Erysipelothrix Septicaemia

SIR,—In answer to the question put by Drs. W. D. Alexander and C. S. Goodwin (31 March, p. 804) our patient never received steroids for her psoriasis and was never on any form of immunosuppressive drugs. She remains well and there is no obvious predisposing factor that we can discover.

We agree that we would perhaps have been wiser to be less dogmatic and to report that there was "no clinical evidence of endocarditis," but in the cases previously reported the endocarditis has been gross, with severe valve damage in every case, and we felt that endocardial involvement was unlikely in our patients.—We are, etc.,

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Thrombotic Thrombocytopenic Purpura after Influenza Vaccination

SIR,—We wish to report a case of thrombotic thrombocytopenic purpura following influenza vaccination.

A 23-year-old Sikh nurse was vaccinated with Flenzavax (Wellcome). No immediate reaction was noted, but 14 days later she developed the first of numerous spontaneous bruises, and after a further seven days increasing pallor prompted a blood count, after which she was admitted to hospital. Examination revealed anaemia, numerous bruises, a positive Hess's test, and a blood pressure of 180/95 mm Hg, but no other abnormalities.

Investigations showed: haemoglobin 9.2 g/100 ml, reticulocytes 9%, white blood count 8,200/mm³, platelet count 39,000/mm³, and peripheral blood film showing the typical features of a microangiopathic haemolytic anaemia with numerous schistocytes and microspherocytes. Direct Coombs test negative. Bone marrow showed hyperplastic erythropoiesis, normal leucopoiesis, and normal numbers of mature megakaryocytes but with little platelet budding visible. Fibrinogen titre normal. Fibrinogen degradation products not increased. L.E. cells absent. Blood urea 34 mg/100 ml. Midstream urine contained few red cells, no white cells or casts; sterile. Total serum bilirubin 4.7 mg/100 ml. Serum electrolytes, serum alanine aminotransferase, alkaline phosphatase normal. Immunoglobulins: IgA 133 mg/100 ml, IgG 2,800 mg/100 ml, IgM 55 mg/100 ml, anti-nuclear factor, thyroid, mitochondrial, and smooth muscle antibodies negative. Pregnoticon

test negative. A chest x-ray and barium meal showed no abnormalities.

The clinical course is shown in the figure.

Despite several days of intravenous heparin the haemoglobin and platelet levels continued to fall, the red cell abnormalities became more striking, and the blood urea level rose to 68 mg/100 ml. On the eighth day the patient became stuporose incontinent with marked neck stiffness, but without focal neurological signs. Heparin was discontinued and prednisolone 100 mg daily commenced. Over the next three weeks the platelet count rose and the evidence of red cell damage on the blood film lessened. The blood urea returned to normal and all neurological abnormalities disappeared within one week of starting prednisolone. At follow-up the blood film, platelet count, and blood urea are normal and prednisolone has been discontinued. She is normotensive, and there are no clinical findings to suggest a collagen disorder or disseminated malignant disease.

The aetiology of thrombotic thrombocytopenic purpura and the related condition of the haemolytic-uraemic syndrome of childhood are unknown. One current view^{1,2} is that in certain individuals circulating soluble antigen-antibody complexes might be formed, possibly due to impaired responsiveness, following antigenic stimuli such as virus infections or vaccinations. These complexes can trigger platelet aggregation, disseminated intravascular coagulation, and possibly vascular endothelial damage, with consequent thrombocytopenia and "microangiopathic" haemolysis. The development of thrombotic thrombocytopenic purpura after influenza vaccination in our case, and after triple-antigen and T.A.B. vaccination in another,³ might be relevant to this hypothesis. Similarly, cases of the haemolytic-uraemic syndrome have been reported after triple, polio, measles, and smallpox vaccinations and viral infections.^{1,4}—We are, etc.,

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- 1 Brain, M. C., *Seminars in Hematology*, 1969, 6, 162.
- 2 Pitney, W. R., *Seminars in Hematology*, 1971, 8, 65.
- 3 Frick, P. G., and Hitzig, W. H., *Lancet*, 1960, 2, 1401.
- 4 Davison, A. M., Thompson, D., and Robson, J. S., *British Medical Journal*, 1973, 1, 654.

Curarizing Substance in Myasthenia Gravis

SIR,—Dr. Mary B. Walker (7 April, p. 42) recalls experiments carried out in the 1930s which strongly suggested that a curarizing substance produced in forearm muscles during contraction to the point of fatigue will increase the weakness of proximal muscles when the blood from the forearm is allowed to re-enter the circulation by deflating the cuffs previously constricting the arms. She mentions that these experiments "have been confirmed, though not by all observers." I have demonstrated this elegant experiment of Dr. Walker's on many occasions. The accompanying photographs show the dramatic increase of weakness in facial muscles and upper lids one minute after deflation of the arm cuffs in one of my patients. My experience confirms Dr. Walker's opinion that failure might be due to attempting the experiment on too mild a myasthenic or on one under the influence of neostigmine.

An observation very much in line with Dr. Walker's, although less neat, was made in 1929 at the Salpêtrière by Pierre Bourgeois. In his Paris thesis on myasthenia¹ he reproduces two photographs to illustrate what he calls "*l'expérience du ptosis*"

FIG. 1—Patient looking up before inflation of cuffs.

FIG. 2—Patient looking up one minute after release of cuffs.

provoqué." His patient, a middle-aged man, was asked to flex the fingers of his right hand repeatedly to the point of exhaustion. As fatigue came on the eyelids drooped progressively, the right eye developed a slight external squint, and the face assumed the myasthenic mask.—I am, etc.,

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¹ Bourgeois, P., *La Myasthénie*, Paris, N. Maloine, 1929.

Increased Dosage of Disodium Cromoglycate

SIR,—Observations on the safety of disodium cromoglycate in the long-term use in children failed to show evidence of significant toxic or allergic damage.¹ In the course of the study it was, however, noted that 13.4%