tion by binding to ristocetin and not by an effect on the platelets or the ristocetin co-factor. There is no evidence that our observation reflects an influence of Haemaccel on the haemostatic mechanism in vivo. All evidence suggests that this inhibition is solely an in-vitro phenomenon.—We are, etc.,

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Tests for Lactose Malabsorption in Adults

SIR,—In your leading article, "When Does Lactose Malabsorption Matter in Adults?" (17 May, p. 351) a review of the methods introduced for the diagnosis of lactose intolerance was presented, and included broad screening tests such as stool pH, symptomatology after lactose ingestion, lactose-barium meal, and carbon-14 breath test as well as the more widely used 50-gram oral lactose tolerance test with measurement of the blood glucose rise—a technique requiring multiple blood samples. "Final proof of the diagnosis has to be obtained by measuring the lactase activity of a jejunal biopsy specimen." No mention was made in the leader of analysis of breath hydrogen (H_2) by gas chromatography following lactose ingestion. Calloway¹ and Levitt² first showed that breath H_2 concentration rises when malabsorbed lactose is fermented in the large bowel, and they suggested that breath H_2 may be used as a measure of lactose malabsorption.

We have recently completed a study³ comparing intestinal lactase activity with symptomatology, blood glucose rise, and breath H_2 production in a group of patients with diarrhoea. We found breath H_2 to be as reliable as the blood glucose and better than symptoms in the diagnosis of hypolactasia. As it does not involve multiple venepunctures it is more acceptable to patients and it is also easier to apply from the technical point of view.⁴ Furthermore, our experience agrees with that of Isokoski⁵ and disagrees with your suggestion that symptomatology may be used as a reliable test of hypolactasia.

We would also argue against the suggestion that intestinal lactase activity is the final proof of lactose malabsorption. For example, in the coeliac syndrome jejunal lactase activity may be reduced but lactose absorption still occurs further down in the ileum. Thus the sugar can be said to have been malabsorbed only if it passes through to the caecum, whereupon its subsequent fermentation with evolution of H_2 may truly be claimed as a measure of its malabsorption.—We are, etc.,

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Humidification of Inspired Air

SIR,—I read your leading article on this subject (26 April, p. 157) with pleasure. I beg you, however, to allow me to make one remark about the last sentence of the article.

Neither a jug of water nor "more effective humidifiers" will give appreciable improvement in humidification during cold periods if great care is not taken to pull thick curtains over the doors and windows. The relative humidity of the heated room depends on its coldest spot. Whatever amount of water evaporates in a room at a temperature of, say, 18°C will settle down on the window pane at, say, 0°C until maximum humidity at 0°C is reached. Since heating (above all central heating) usually leads to a very low relative humidity it is unrealistic to hope that one can really increase it with a simple jug of water or more sophisticated humidifiers as long as the fluid will only rain down on the cold window panes. This does not help breathing, nor does it save antique furniture.—I am, etc.,

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Arthritis of Hepatitis: the Tourniquet Test

SIR,—A serum-sickness-like illness manifesting as migratory polyarthritis, fever, and urticaria has been recognized as a prodromal phase of hepatitis both positive and negative for hepatitis B surface antigen (HBsAg). Fernandez and McCarty¹ reported a patient with hepatitis and arthritis in whom severe urticaria developed in the arm distal to the point of application of a tourniquet. We report here (1) the occurrence of three different skin lesions and (2) the effect of the tourniquet test in a documented case of HBsAg arthritis.

A 16-year-old non-addict male presented with a five days' history of malaise, headache, fever, and polyarthritis of the proximal interphalangeal and metacarpophalangeal joints. Itching and urticaria developed two days later. On examination, all the affected joints were swollen, tender, and hot. A scaly erythematous macular rash was evident over each of these joints. Giant urticarial lesions were present over the upper extremities. No icterus was detected. The liver was 2 cm below the costal margin, soft, and non-tender. Initial studies revealed a normal blood count, platelet count, E.S.R., and urine analysis. When the rest of serum bilirubin (total 22.2 μ mol/l (1.3 mg/100 ml), direct 7.7 μ mol/l (0.45 mg/100 ml)) and SGOT and SGPT (400 and 450 Franklin units respectively) were available arthritis of hepatitis was considered. Further studies showed the presence of HBsAg in the serum, C_4 690 (normal 900–1500 mg/l) and C_3 100 (normal 100–510 mg/l). Haemoglobin Ab could not be detected in the serum. Total serum proteins, antinuclear antibody, L.E. cell, rheumatoid factor (latex), V.D.R.L., and heterophile antibody tests, and creatine, phosphokinase, and aldolase activities were normal or negative. He became jaundiced one week after the onset of the arthritis and shortly afterwards a petechial rash was noticed over the chest. The serum enzymes reached a peak on the 12th day of the illness (SGOT 1060, SGPT 2750 F.U.). When the tourniquet test was done itching developed distally but no skin lesions appeared. The subsequent course was uneventful. One month after the jaundice has appeared, serum hepatitis B antibodies could be demonstrated and the C_3 and C_4 levels became normal.

The acute onset of polyarthritis, fever, and urticaria along with hypocomple-

mentenaemia and HBs antigenemia is typical of HBsAg arthritis. Besides urticaria, erythema marginatum and papular, macular, and petechial lesions have been described.² Our patient is of interest in that three skin lesions developed. Scaly macular lesions over the involved joints of the hands, mimicking the lesions of dermatomyositis, and giant urticaria limited to the upper extremities were both present in the pre-icteric phase, and when jaundice appeared petechiae developed.

The arthritis of HBsAg hepatitis is thought to be due to the deposit of HBs Ag-anti-HBsAg complexes in the synovium.³ The urticaria, which is an integral part of this syndrome, could also be due to such deposition in the dermis, with subsequent liberation of histamine. The induction of urticaria (or merely itching as in our case) by application of a tourniquet might be helpful as an early diagnostic sign in arthritis of hepatitis. We recommend that this simple test be performed in all cases of arthritis of hepatitis to appreciate its reproducibility and significance.—We are, etc.,

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Department of Internal Medicine,
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Beirut, Lebanon1 Fernandez, R., and McCarty, D. J., *Annals of Internal Medicine*, 1971, 74, 229.2 Alpert, E., Isselbacher, K. J., and Schur, P. H., *New England Journal of Medicine*, 1971, 285, 185.3 Schumacher, H. R., and Gall, E. P., *American Journal of Medicine*, 1974, 57, 655.

SI Units

SIR,—Dr. G. H. Hall (31 May, p. 502) complains that the opinion of clinicians has not been sought before a directive to adopt SI units in the N.H.S. was issued. Quite understandably he accuses "many pathologists" of wishing to introduce this change. He, and doubtless many others, may be interested to know that neither the main body of pathologists, nor biochemists, have been given chance to vote upon the topic by any properly conducted democratic means. Doubtless everybody thinks that because other specialties and other hospitals are changing to the new units, then they too must conform. It is the lack of an opportunity for us to express a collective opinion that allows us to be conquered.

I carried out a poll of opinion within this hospital department. Each member of the staff was asked to give his own personal opinion on the virtue of changing over to SI units. The result was as follows: in favour, three; against, four; "don't know," three; "the present proposals are unsatisfactory and should be reconsidered," 13. Most individuals felt that they would have liked an opportunity to express an opinion and were dissatisfied by the manner in which the directive to change had been given. Those who did not know had not studied the proposals.

There is a political decision to introduce metric units throughout the U.K., but how this should be interpreted in terms of units as applied to laboratory medicine was studied by a working party. Perhaps the current disagreement is not with the policy of metrication as such but rather with the interpretation of this adaptation. The

1 Calloway, D. H., Murphy, E. L., and Baver, D., *American Journal of Digestive Diseases*, 1969, 14, 811.

2 Levitt, M. D., and Donaldson, R. M., *Journal of Laboratory and Clinical Medicine*, 1970, 75, 937.

3 Metz, G. L., et al., *Lancet*, 1975, 1, 1155.

4 Metz, G. L., et al., *Clinical Science and Molecular Medicine*, 1975. In press.

5 Isokoski, M., Jussila, J., and Sarna, S., *Gastroenterology*, 1972, 62, 28.