is present in almost all cases of bronchiectasis; he thought it was a unique feature of his syndrome.

Of the four cases which Kartagener described one showed evidence at necropsy of tuberculosis of the lungs but he dismissed the tubercle bacillus as a secondary invader, unaware that tuberculosis can be a cause of bronchiectasis. The other three patients had a history of respiratory illness early in life and one had a father who had pulmonary tuberculosis. They had severe bronchial damage, as might be expected in the time before anti-bacterial treatment was available, but again all that distinguished them from other cases of bronchiectasis was the transposition of viscera. Kartagener admitted that this was not a disease. He called it a "developmental error" and therefore bound to be associated with bronchiectasis, which to him was a developmental error as well.

It is possible that in some cases of bronchiectasis immunological factors may operate, but it is certain that there is no such thing as Kartagener's syndrome; there is only a legend which has been handed down without scrutiny from one textbook to another, and it is time that it was abandoned.

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THAW-SIPHON TECHNIQUE FOR FACTOR-VIII CRYOPRECIPITATE

SIR,—We were surprised to find that Mr Mason (July 1, p.15) described the improved recovery of factor VIII from human plasma by the thaw-siphon technique in terms of Le Chatelier's principle. Le Chatelier's principle is based on the second law of thermodynamics and concerns a change from one equilibrium state to another due to a change in a variable which determines that equilibrium state, such as pressure or temperature.[1] In the thawing of plasma for factor-VIII recovery there are two states of solid-liquid equilibrium which are of particular importance; that between solid (frozen) plasma and liquid (thawed) plasma defined by the melting point, and that between solid (insoluble) factor VIII and liquid (thawed) plasma defined by factor-VIII solubility. During the thawing of plasma by the thaw-siphon technique neither of these properties is altered. A change in the melting point would require a substantial change in pressure while a change in the factor-VIII solubility relationship would require the addition of another component such as acid, ethanol, or polyethylene glycol.

The essential problem of plasma-thawing for factor-VIII recovery, in the absence of a change in equilibrium states, is to maximise the rate of thaw within the constraint provided by factor-VIII solubility. To attain this two aspects have to be considered on the plasma side of the operation; the heat input and distribution have to be carefully controlled and the surface area available for heat transfer has to be maximised. The former can be achieved by sophisticated mixing and temperature control systems and it is here that the thaw-siphon technique has merit. By continuously removing the thawed plasma, factor VIII is retained at a temperature close to the plasma melting-point. Dissolution of factor VIII is avoided, and the degree of factor-VIII degradation is reduced because of both the lower temperature and the shorter time of exposure to the damaging conditions that pertain during thawing.

The second aspect, provision of a high surface area, has been almost entirely neglected in studies of plasma-thawing. At the protein fractionation centre we have used a modified Rietz disintegrator for over 5 years for crushing plasma to a coarse "snow" before controlled thawing. By this means 130 l of fresh frozen plasma can be thawed in 45 min, compared with 55–65 min required to thaw a 220 ml slab.[1] To increase this rate of thaw further we have designed a process of crushing and thawing continuously which utilises fluid removal for temperature control, similar in principle to the thaw-siphon technique. Further details of this process will be presented elsewhere.

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SYNTHESIS OF PROCOAGULANT ANTIHÆMOPHILIC FACTOR IN VITRO

SIR,—Blecher et al.[1] report that normal and hæmophilic leucocytes cultured in vitro with phytohæmagglutinin synthesise a procoagulant with the properties of factor VIII-C. There is, however, strong evidence that if such synthesis occurs in vivo it is neither measurable nor clinically significant. A successful and sustained hæmopoietic and lymphoid graft from a normal canine donor into a hæmophilic recipient does not result in factor VIII-C levels detectable by one-stage methods, while the clinical condition of the animals is not ameliorated.[2] Moreover, patients with aplastic anæmia with very low leucocyte-counts show no fall in factor VIII. Finally, Blecher et al. find that hæmophilic leucocytes synthesise the same amount of factor VIII as normal leucocytes, yet despite this synthesis there are no detectable amounts of factor VIII in very severe hæmophilia.

Blecher et al. use an ingenious method, based on factor-VIII-C inhibitor neutralisations, for the assay of factor VIII-C. Their test system included phospholipase C, which partially removes the tissue-factor-like thromboplastin appearing in the supernatants. Nevertheless, it is virtually impossible to eliminate completely the effect of tissue juices and leucocyte proteases on assays which depend upon shortening of clotting-times. The recently described radioimmunoassays[3,4] for VIII-C should give more definitive information. Blecher et al. concede the possibility that the coagulant protein released may be a closely related substance. But even if the substance released is factor VIII-C the finding should not be expected to have any practical implications for new approaches to the treatment of hæmophilia.

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DEXAMETHASONE FOR ACUTE RADIATION ENCEPHALOPATHY

SIR,—Dr Oliff and colleagues (July 1, p. 13) described acute encephalopathy after cranial irradiation for leukæmic meningitis. We have seen acute encephalopathy in a similar patient and suggest prophylactic treatment with dexamethasone.

A 49-year-old man with acute myelogenous leukæmia in hæmatological remission complained of headaches and paræsthesiæ over the right side of the face. Neurological examination was normal except for blurring of the right optic disc. Cerebrospinal fluid contained 50 myeloblasts/ml. The patient received 400 rads to the skull, the first in a course of 2400. 8 h later he had severe headaches, intractable vomiting, dysarthric speech, and obtundation of consciousness. Dexamethasone was given intravenously (4 mg four times daily). 48 h later the patient had recovered with no residual neurological deficit. The radiation therapy was reinstituted and the patient maintained on dexamethasone (4 mg four times daily) until the end of the course. 7 months later, the patient is still in hæmatological and neurological remission.

1. Blecher, T. E., Westby, J. C., Thompson, M. J. *Lancet*, 1978, i, 1333.
2. Storb, R., and others. *Blood*, 1972, **40**, 234.
3. Lazarchick, J., Hoyer, L. W. *ibid.* 1977, **50**, suppl. 1 abstr. 274.
4. Peake, I. R., Bloom, A. L. *Lancet*, 1978, i, 473.