of acute leukaemia in seven of their series of 100 cases of aplastic anaemia in children. Four of their cases were of the constitutional type, which may be especially prone to leukaemic transformation;¹ five had received anabolic steroids.

The point is that an aplastic or hypoplastic bone marrow is unstable. Recovery, with or without therapy, may be complete; on the other hand, some become chronic, and a small minority will develop a clone of abnormal haemopoietic cells which declares itself by a new clinical picture, which may be acute leukaemia, paroxysmal nocturnal haemoglobinuria, or (as in one personally observed case) sideroblastic anaemia. Drugs which stimulate surviving marrow tissue in this unstable environment may accelerate the appearance of abnormal clones.

It may be that the very efficacy of oxy-methalone in producing remission in aplastic anaemia renders it especially liable to cause proliferation of "wild" clones of haemopoietic cells. The fact that therapy with anabolic steroids is not associated with an increased incidence of acute leukaemia in other clinical situations is not relevant, because in these there is no marrow instability.—We are, etc.,

C. G. GEARY
I. W. DELAMORE

Department of Clinical Haematology,
Royal Infirmary,
Manchester

¹ Smith, Carl H., *Blood Diseases of Infancy and Childhood*, 1966, 2nd edn. London, Kimpton, p. 253.

Cremation Regulations

SIR,—One has every sympathy with Dr. H. C. Maingay's desire to interpose some expert appraisal of the medical evidence on which a coroner has judged that nothing further of the sort is required. As one of the coroners to whom he kindly refers (25 September, p. 770) and who appreciate his tactful co-operation, I have seen many post-mortem reports that he would not have found acceptable as the basis of any sort of disposal of the body before further medical exploration and even alteration.

However, the theory is and is likely to remain that a coroner without any medical knowledge at all is the final competent authority to judge the validity and relevance of all medical evidence without further medical assistance. That is the predicament of most coroners, and the majority of bodies are disposed of purely on the basis of their appraisal of medical reports. Undoubtedly there is a strong case for a full and final medical assessment in all circumstances, but with respect to Dr. Maingay, I would point out that he can hardly expect to be welcomed as a sort of professional "long-stop" when the official view is that the amateur wicket-keeper is in fact stopping everything that comes down his pitch.—I am, etc.,

J. SHACKLETON BAILEY

Eye,
Suffolk

SIR,—I read Dr. H. C. Maingay's letter (25 September, p. 770) with interest because as medical referee to the Cheltenham Crematorium I raised the same point when the new regulations were published in 1965. I did not

consider that the coroner's Form E omitting the cause of death gave me authority to sign Form F, certifying that I had satisfied myself "that the cause of death has been definitely ascertained."

I took legal advice on this matter and after it was considered by the Crematorium Committee the coroner was informed by the Crematorium Authority that the issue of Form E must be interpreted by the medical referee as certifying that he (the coroner) had satisfied himself that the cause of death had been adequately ascertained—that is, the responsibility was the coroner's although the medical referee signed Form F.

At the same time an approach was made to the Federation of British Crematorium Authorities. The secretary replied that it was the opinion of his committee that it was difficult, if not impossible, for the medical referee to issue Form F on the limited information provided on Form E. Although the Federation was consulted before the regulations were issued, they were not shown the proposed new Form E and were "astonished" when they found that the regulations had been made effective. Further representations made by the Federation to the Home Office have apparently been without result.

I agree with Dr. Maingay that both common sense and common courtesy demand that the medical referee should be given adequate information before issuing Form F, and this has been recognized by coroners themselves in some parts of the country. Although I have been unable to come to a satisfactory arrangement with the coroner for my own district, every Form E which I receive from the coroner of adjoining districts has the cause of death written on the back.

Let us hope that the Brodrick committee will recommend a satisfactory solution to this problem.—I am, etc.,

T. O. P. D. LAWSON
Cheltenham, Glos

Protein-bound Peptides in Human Serum

SIR,—We wish to report the detection of two peptide fractions, bound to proteins, in serum from normal subjects and from patients with rheumatoid arthritis receiving treatment with antirheumatic drugs. The fractions were isolated by applying the sera to Sephadex columns and collecting portions of the eluates containing the proteins and associated bound molecules. The proteins were removed by precipitation with trichloroacetic acid followed by centrifugation and the supernatants were concentrated and analysed for ninhydrin-positive substances using a Technicon Amino-acid Analyzer system.

Two fractions, appearing as narrow discrete peaks with maxima at 60 and 270 min running time, were found in each sample of serum. They behaved as homogeneous materials when passed through several types of Sephadex columns and after elution with a variety of salt solutions. Both fractions gave mixtures of amino-acids on acid hydrolysis. Over 90% of the 60 fraction and over 70% of the 270 fraction were bound to the circulating proteins. Their total concentrations (protein-bound plus free) in the sera were approximately 0.01% of the albumin in terms of the colour given with ninhydrin. Sera from patients with active rheumatoid arthritis receiving therapy with

one or more of the following drugs, aspirin, indomethacin, prednisolone, and gold salts, contained significantly more of fraction 60 and significantly less of fraction 270 than normal sera.

The behaviour of these peptides is that predicted for the hypothetical "protective" peptides of McArthur and co-workers (19 June, p. 677). They occur in human serum and are bound to circulating proteins. The higher concentration of fraction 60 in the serum of patients with rheumatoid arthritis receiving therapy shows that more of this peptide is bound to proteins in such patients. If this fraction is displaced by the anti-rheumatic drugs a higher proportion should be bound in untreated patients. We have observed that in one patient who for several days received paracetamol, which possesses analgesic but not clinical anti-inflammatory activity,¹ the total concentration of fraction 60 was not only above that found in the treated patients but also that it decreased by over 60% after subsequent treatment for seven days with full antirheumatic doses of aspirin.

Further investigation of the chemical structure and anti-inflammatory activity of this peptide are indicated, together with a search for similar compounds which are also displaced by the commonly used anti-rheumatic drugs and which are bound to a greater extent to serum proteins in rheumatic patients.—We are, etc.,

J. N. MCARTHUR
M. J. H. SMITH
E. B. D. HAMILTON

Departments of Biochemical
Pharmacology and Rheumatology,
King's College Hospital,
London S.E.5

¹ Boardman, P. L., and Hart, F. D., *British Medical Journal*, 1967, **4**, 264.

Chorea and Occlusion of Central Retinal Artery

SIR,—The association of chorea with occlusion of the central retinal artery has been reported 15 times since 1875.¹

A further case was a 15-year-old African girl who came to hospital during her second attack of chorea and was found to be blind in the right eye. She became blind overnight during her first attack two years previously. Apart from features of Sydenham's chorea, the only abnormality was in the right fundus. This consisted of a stark white disc, typical of optic atrophy, and retinal pallor. There was extreme attenuation of the central retinal artery and its branches. The branches on the temporal side were represented by white streaks, the "ghosts" of occluded arteries. Slightly increased pigmentation surrounded the macula. The heart was normal. Blood count, cerebrospinal fluid, chest x-ray, and E.C.G. were normal.

This association of central retinal artery occlusion with chorea, though rare, must be more than coincidence. It may provide a clue to the pathogenesis of Sydenham's chorea. Possible mechanisms of the occlusion are embolism, arterial spasm, and thrombosis.^{2,3} Embolism seems unlikely because most reported cases had no endocarditis. It would be an odd coincidence by which emboli, when they occur, consistently reach the central retinal artery and no other arteries. It is more likely that the chorea syndrome results from arteritis and thrombosis specific to certain arteries. The only