Letters to the Editor

FRAGILITY OF LEUCOCYTES IN CHRONIC LYMPHATIC LEUKAEMIA

Sir,

The occurrence of a grossly incorrect result for the 'total leucocyte count' was observed in a case of chronic lymphatic leukaemia when this figure was estimated using the Coulter counter model A with the 'saponin' method of lysing the red cells.

In this particular case, the total leucocyte count was estimated in two ways: (a) by taking blood samples in duplicate for the Coulter instrument, and (b) by taking blood samples in duplicate for the visual method using accurate B.S.S. 748 white cell dilution pipettes, with 2% acetic acid as the diluent and counting the cells on a double-ruled improved Neubauer haemocytometer, amended B.S.S. 748 (1958). The four-corner square millimetre areas on each side of the haemocytometer were counted for the visual method and six separate counts were made on each of the two Coulter samples. The Coulter counts were made 10 minutes after the addition of 0.1 ml. of a 2% solution of saponin (B. D. H. White), at an instrument threshold setting of 40.

The results of the Coulter counts, after correction for the blank were: 7,568, mean for the six counts on blood sample no. 1, and 8,116, mean for the six counts on blood sample no. 2, giving a final mean for both blood samples of 7,842 leucocytes per c.mm. of whole blood. The results for the visual counts were 17,400 and 15,700 respectively, giving a final mean for both samples of 16,550 leucocytes per c.mm. of whole blood.

Previous counts on this individual carried out at two-monthly intervals, using the same methods, have not shown this phenomenon, neither did any of the total leucocyte counts made at the same time on other individuals, using the same diluting and saponin solutions. The leucocytes seen on the haemocytometer counting chamber were well-defined cells and apparently not degenerate types; the stained blood film, however, did show approximately 50% of the leucocytes to be smear or basket cells, suggesting a high degree of degeneration or fragility of the leucocytes.

It seems probable that the saponin solution used for lysing the red cells when making the total leucocyte counts also lysed many of the leucocytes in this particular case and it may be that as the condition advances the leucocytes become more fragile. It has also been suggested that since the lymphocytes in this condition are of the very small type, many may be missed when counting leucocytes with a threshold setting used for normal white cell counts.

Although this may be an observation of no significance, it would be interesting to learn if others have experienced similar findings.

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CAUTIONARY TALE

Sir,

I am sending you a cautionary tale so that others may profit.

1961 A small extension was added to this laboratory. In a room designed for balances and other precision equipment a subcontractor fitted copper waste pipes. One of these ran, with far too shallow a fall, under some 10 ft. of bench and behind under-bench cupboards through a brick wall to the outside.

1965 Lack of space made it necessary to use the balance room for autoanalysers.

1966 *Early May* The copper pipe inevitably developed a leak and the sink was taken out of use pending the pipe's repair.

Mid-June After some delay owing to shortage of maintenance staff repair was begun. In order to remove the pipe a plumber was easing it through the brick wall when a violent explosion occurred. The pipe was split wide open throughout its length and the doors of the under-bench cupboards were blown off their hinges. Sustaining only minor injury to his hand, the plumber had a fortunate escape from what might have been a very serious and even fatal accident.

The most likely explanation of the explosion is that picric acid, used for creatinine estimations, had formed copper picrate in the pipe. During the six weeks' period of disuse the picrate had dried out and was detonated by the plumber's manipulations. The moral is clear: only plastic or glass waste pipes, with an adequate fall, should be used for chemistry laboratories.

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ANALYTICAL METHODS FOR STEROIDS

Sir,

The Medical Research Council is intending to make further recommendations, if possible, on analytical methods for steroids, and currently, a sub-committee is considering fluorimetric methods for the analysis of plasma cortisol. It would be very helpful to have comments from anyone with experience of these techniques. Information on technical difficulties, modifications, interference from drugs, etc., would be particularly useful. I should be grateful if you would bring this letter to the attention of your readers, and invite them to communicate with me if they have information which they feel may be of value.

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