Letters to the Editor

Quality Control for Coulter Counter Models

In this laboratory, we have been using a method of quality control for our Coulter Model S which is not related to commercial whole blood standard preparations. The method we use involves calibration of the haemoglobin level against three commercial cyanmethaemoglobin standards conforming to the ICSH international reference standard.

We have been concerned to find that, in the last six months, our haemoglobin results on the DHSS and BCSH haematology quality assessment trial and on the West Midlands Regional Quality Control Scheme (Haematology) have averaged 0.5 g/dl higher than laboratories using Coulter 4C to calibrate their machines. This discrepancy is also reflected in the mean haemoglobin level for laboratories using the Coulter Model S and 4C as quality control compared with laboratories using other methods (Coulter S not controlled by 4C and semiautomated and manual methods) (figure).

We have been unable to explain this discrepancy and would be interested to know whether other laboratories have had the same experience.

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COMMENT

In the national quality control trials, it has been found consistently that participants using Coulter S produce a lower mean value for haemoglobin than with other systems and, although the difference is in the order of 0.2-0.3 g/dl, 0.5 g/dl is just within 2 SD. Although there is no definite information, it seems likely that this discrepancy is due to the use of 4C as a calibrating material by the majority of Coulter S users, but not by others. A trial is now planned which will include calibrated whole blood, a cyanmethaemoglobin preparation, and the ICSH International Reference Preparation in order to try to identify the cause of the discrepancy.

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Figure Mean variance index of haemoglobin in the West Midlands Regional Quality Control Scheme;

▲ laboratories using the Coulter Model S and 4C;
● other laboratories.

T cells in chronic lymphatic leukaemia

An absolute increase in the number of T circulating lymphocytes in patients with chronic lymphatic leukaemia of B type has been found by several authors (Catovsky *et al*, 1974; Lang *et al*, 1975; Macavei and Halmos, 1975).

Using the E-rosetting method (Stjernsward *et al*, 1972) and the total and differential white blood cell count, we determined the absolute number of T cells in the circulating blood of 15 patients with chronic lymphatic leukaemia. The average that we obtained is in agreement with that of the above authors ($4021 \pm 583/\text{mm}^3$ with respect to our normal standard: $1278 \pm 372/\text{mm}^3$).

In a previous report (Semenzato *et al*, 1976) we demonstrated, using the one-way mixed lymphocyte culture technique, a reactivity of the T cells against the autologous B cells which were altered due to chronic lymphatic leukaemia. In order to illustrate the effect of chronic lymphatic leukaemia over a period of time we divided the patients into two groups: (1) subjects (7) studied at the moment of diagnosis, and (2) subjects (8) in whom the disease had been noted for more than

two years.

It is interesting to note that in the subjects of the first group, the average number of T cells was remarkably less than that of the second group ($2698 \pm 237/\text{mm}^3$ v $5580 \pm 797/\text{mm}^3$; $P < 0.001$ (Student's *t* test)). None of the patients was under treatment when the blood was drawn.

As we have suggested (Semenzato *et al*, 1976), in chronic lymphatic leukaemia the T lymphocytes, which are still normal (Wybran *et al*, 1973), respond with an increase in their absolute number due to their acquired sensitivity to the neoplastic B cells. This has also been reported in other diseases in both clinical (Kaur *et al*, 1974) and experimental (Konda *et al*, 1973) situations. It is clearly shown in the patients of group 2 in whom the longer duration of the disease caused the B cells to sensitize more T cells.

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Book reviews

Leucocytes: Separation, Collection and Transfusion. Edited by J. M. Goldman and R. M. Lowenthal. (Pp. xxxvi + 602; illustrated; £13-80) New York: Academic Press. 1975.

More and more centres are acquiring cell separators and are debating the relative advantages of continuous flow (IBM and AMINCO), intermittent flow (Haemonetics), or filtration leucapheresis (Leukopak) methods. For those engaged in or contemplating such work the collected papers of this International Symposium held in London in September 1974 will be a unique compendium of source material and discussion. Early chapters describe fundamental research leading to the development of the continuous flow centrifuge, and this is an eye-opener to those who have become blasé to these superficially simple machines. The use of steroids and agents such as hydroxyethyl starch to enhance granulocyte yield, and granulocyte function after the various methods of collection are next described. Donor response to leucapheresis by continuous and filtration methods is specifically dealt with.

The prime clinical application of cell separators is granulocyte transfusion in neutropenic, infected patients, usually leukaemic. Over a dozen papers are devoted to this aspect. Other applications, each the subject of a number of papers, include the place of leucapheresis in the treatment of chronic leukaemias, the collection of leukaemic blast cells for purposes of immunotherapy, the collection of colony-forming cells in canine experimental systems, the relevance of HL-A typing to the efficacy of granulocyte and platelet transfusions, the varied use of plasmapheresis in a variety of medical conditions, and the paediatric applications of cell separators.

Virtually all those workers concerned with the development and current clinical applications of cell separators took part in this symposium, which was dedicated to the memory of Bob Eisel who contributed so much to the field.

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Blood Vessels. By W. J. Cliff. (Pp. ix + 214; illustrated; £10-00) London: Cambridge University Press. 1976.

This book is an account of vascular

anatomy and its relation to physiology and pathology. The lumen, endothelium, extraendothelial cells, extracellular components, and ancillary structures are treated individually, and each section follows a logical sequence of gross anatomy, light microscopy, and ultra-structure. The morphology is presented in great detail and related to function wherever possible, and a satisfying proportion of the text is devoted to pathological changes and, in particular, to atherosclerosis. The illustrations are adequate and the bibliography appears comprehensive although it is surprising to find only one reference later than 1972. The author has succeeded in presenting a large amount of information in about 150 pages without making the book difficult to read. The inclusion of references within the text is sometimes irritating, as when short sentences are divided up by several consecutive lines of names and dates. There are occasional statements which pathologists may regard as outdated, such as thoracic aneurysms usually being due to syphilis, but occasional inaccuracies must be almost inevitable where a single author attempts to survey many aspects of an important and much studied subject. These minor criticisms should not detract from the overall value of a small, readable, and instructive book which can be confidently recommended to anyone interested in vascular function or pathology.

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Basic Medical Laboratory Technology. By C. J. C. Kirk, R. N. Peel, K. R. James, and Y. Kershaw. (Pp. vii + 327; illustrated; £8-00) Tunbridge Wells: Pitman Medical Publishing Co. 1976.

The aim of this book has been to provide a working knowledge of the basic techniques used in each of the major branches of pathology. It contains a minimum of theory and is intended to supplement the practical training of technicians in the laboratory, theoretical knowledge being acquired from the Technical College courses for the Ordinary National Certificate. The book begins with excellent sections on laboratory safety, plastic and glassware, general equipment, and the microscope, which should be very useful to anyone starting work in the laboratory. The fact that microbiology (including mycology, parasitology, serology, and sterilization), histology, haematology,