storage period showed that after three days the level in the sensitive cells was negligible while in the normal cells it remained at about 90 per cent of the original value (Table 3). In contrast the GSH-level and its stability, although lower in the sensitive cells, were unaffected by storage of the samples of blood at 4° C in ACD at *p*H 7·6 for up to two weeks. During the third week the GSH stability of the normal cells fell, the final post-incubation value reaching the low, but relatively constant, level found in the sensitive cells (Table 2). Clearly ACD is satisfactory as an anticoagulant for field studies only if its *p*H is corrected to 7·6. Although storage of the blood under optimal conditions maintains the GSH-level and its stability for up to two weeks, the sample should be examined at once to determine its full G-6-PD activity. As the decline in G-6-PD activity is approximately linear the results of tests performed during the first 48 h may be corrected to indicate the original level. Later, owing to the rapidity of the decline in activity, results are less reliable so that *fava*-sensitive and normal subjects might be confused.

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Differences of Bone Marrow Cells in Sheep and Man

Authors working on bone marrow of sheep have generally considered the cells sufficiently similar to those in man to disregard the necessity of their closer morphological examination. However, recent examinations of normal cells have disclosed differences which should not be neglected, particularly when changes of the bone marrow due to pathological conditions are to be examined. The detailed results are being published in monograph form with comprehensive colour illustrations of all the cell types[1], and the following account summarizes the differences between (the cells of) sheep and man.

Using human material as a yardstick, the first impression gained of smears from sheep is, apart from differences in shapes and sizes, a less brilliant display of colours, giving a duller and technically almost unsatisfactory picture Differences between certain cells are less pronounced, making identification more difficult. The cells differ from their better known human counterparts mainly by the following characteristics.

In the erythrocytic series, the cells are smaller, due to less abundant cytoplasm and develop into erythrocytes of an average diameter of only 4·5μ. The cytoplasm is more basophilic, which is particularly evident in the more mature stages where normoblasts show only a narrow rim of bluish cytoplasm around the nucleus. After denucleation, young erythrocytes are still bluish-grey, and only fully mature erythrocytes become more acidophilic, yet noticeably less so than in man. The failure of the erythocytes to stain a brighter pink contributes significantly to the duller appearance of the preparation. This cannot be improved by staining at a more acid *p*H as this would render the colour of the nuclei unsatisfactory.

In the neutrophilic series the cytoplasm becomes, with maturation, chromophobic rather than acidophilic. While it is distinctly blue in the youngest cells, it becomes less intensely stained with maturation and is pale blue or almost unstained at the metamyelocyte stage. In band cells it is even less stained, and in segmented cells, usually unstained, otherwise very pale pink. An outstanding feature of the neutrophilic series is the difficulty of demonstrating the characteristic granules. In segmented neutrophils small granules can usually be shown by certain conventional hæmatological dyes, in a narrow *p*H range, and a few granules are occasionally seen in band cells, but not in still younger cells. However, the presence of these granules, which are smaller than in man, can be demonstrated as far back as the myelocyte stage, by certain fat stains and the peroxidase reaction[2]. Segmented eosinophils rarely show two lobes, as usually seen in man, but three or four and occasionally more.

Monocytes are more difficult to recognize in sheep and may be confused with neutrophilic myelocytes, metamyelocytes or lymphocytes. The nucleus varies in shape from round to highly indented and resembles in texture that of a more mature metamyelocyte. The main difficulties are caused by the colour of the cytoplasm which is similar to that of neutrophilic myelocytes or metamyelocytes. The cytoplasm of the monocytes is less basophilic than in man, while that of the neutrophils is more basophilic than in the corresponding cells in man. Furthermore, the young neutrophils do not show granules. The 'ground-glass' appearance of the cytoplasm, usually characteristic for monocytes, is less pronounced, which makes differentiation from lymphocytes more difficult.

A myelogram of normal sheep based on 122 counts from 18 healthy animals, with an insignificant parasite burden[3], showed the proportions of erythrocytic and eosinophilic cells to be 60·8 and 8·76 per cent respectively, and thus several times higher than in man. The average granulocytic/erythrocytic ratio was 59·4 per cent and the average granulocytic maturation ratio 53·4 per cent. It is argued, however, that this form of calculation, as practised in man, is not suitable for sheep. While in man granulocytes other than neutrophils amount to a relatively insignificant number, in sheep, with their larger proportion of eosinophils, such treatment of granulocytes as a uniform group would give valid results only if alterations of the eosinophils due to pathological conditions closely followed alterations of the neutrophils. As this is unlikely, neutrophils and eosinophils have been separated and the following average ratios have been found: neutrophilic/erythrocytic, 41·8 per cent; eosinophilic/erythrocytic, 16·37 per cent; neutrophilic/eosinophilic, 317·0 per cent; neutrophilic maturation, 49·2 per cent; eosinophilic maturation, 66·18 per cent.

These findings, representing the normal bone marrow of sheep, are now being used as a basis for studying alterations due to various pathological conditions; in the first place acute and chronic post-hæmorrhagic anæmia and helminthic anæmia.

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