

The minimum uric acid concentration of the blood under the influence of atophan varied among twelve individuals (normal, gouty and arthritic) from 0.7 to 2.0 mgm. per hundred grams of blood (initial values — 2.0 to 5.7). These minima are apparently irreducible. In one case, the daily administration of 4 grams of atophan for a period of 45 days failed to lower the uric acid below 0.7 mgm.

The initial concentration is restored within at least 2 to 4 days after the cessation of the use of atophan.

Our studies upon the uric acid concentration of the blood under various conditions are being continued, and will include the influence of colchicum and the salicylates.

With a radium emanation concentration of 2 to 4 M. U. per liter of air, Gudzent² claims to have caused uric acid to disappear from the blood for long periods of time. With our radium equipment, designed to yield 4 to 6 M. U. per liter, there was no noteworthy change in the uric acid concentration of the blood. We desire, however, to reserve definite conclusions until we have completed further studies with radium emanation.

69 (886)

Some structural transformations of the blood cells of vertebrates.

By G. L. KITE (*by invitation*).

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The chief results of a study of structural transformations in the living blood cells of fishes, amphibians, reptiles, birds, and mammals are given in this paper.

The blood cells were usually prepared for observation by mixing fresh blood with Ringer's fluid containing sufficient hirudin to prevent coagulation.

Dark field illumination proved to be satisfactory for the observation of structural transformations in blood cells.

The following five forms or phases may be assumed by vertebrate white blood cells:

1. The hyaline surface phase which is characterized by a hyaline change and great increase in viscosity of the surface layer.

² Gudzent, *Berl. klin. Woch.*, XLVIII (2), p. 2098, 1911.

2. The hyaline phase in which the globular component is localized in a small area of the extremely hyaline cytoplasm.

3. The fine pseudopodial phase which is characterized by the protrusion of fine long motionless protoplasmic processes.

4. The ciliated phase of the white blood cell shows numerous beating cilium-like processes.

5. The flagellated phase is distinguished by the presence of numerous long protoplasmic processes which exhibit the rapid undulatory movement characteristic of flagella.

Notable redistribution phenomena have been observed in erythrocytes of both warm- and cold-blooded vertebrates as well as the formation of either cilium-like or flagellum-like processes. White blood cells or erythrocytes which have numerous rapidly moving protoplasmic processes may be actually free-swimming.

Similar structural transformations have been observed in myelocytes, "pyrrhol" cells, and in cells from inflammatory exudates.

The rôle of structural transformations of white blood cells in phagocytosis has been investigated with interesting results.

70 (887)

Colloidal nitrogen in diabetes.

By **GEORGE B. WALLACE.**

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The so-called colloidal nitrogen fraction of the urine has normally a fairly constant relationship to the total nitrogen, forming from 1 to 4.5 per cent. of the latter. In a number of pathological conditions, the percentage may be greatly increased, rising in some instances to 35 per cent. In a study of this subject by Pribram and collaborators, it was found that in severe diabetes, among other diseases, the percentage of colloidal nitrogen was especially high. Pribram interprets this as an evidence of abnormal or lessened liver function and associates it with the occurrence of diabetic coma.

I have determined the colloidal nitrogen fraction in two cases