

period, only normal white cells could be found. The large lymphoblasts present in the blood before treatment seemed to have disappeared entirely.

These results seem to indicate that the intravenous administration of 4 mgm. of 4-(*p*-diethylaminostyryl)-quinoline dihydrochloride was followed by a remission of the leukæmic blood picture in rat lymphocytic leukæmia 8, but not by a depression of the total white count below the normal level in a fourteen-day observation period.

This investigation was supported in part by grants from the Pew Memorial Foundation and the Medical Research Foundation and in part by grant C-285(C7) from the National Cancer Institute, Department of Health, Education and Welfare.

BOLAND HUGHES
MARGARET REED LEWIS
AUBREY L. BATES

Department of Urologic Surgery,
Hospital of the University of Pennsylvania,
Wistar Institute of Anatomy and Biology,
Philadelphia.
Nov. 30.

¹ Hughes, B., Bates, A. L., Bahner, C. T., and Lewis, M. R., *Proc. Soc. Exp. Biol. Med.*, **88** (2), 230 (1955). Lewis, M. R., Hughes, B., Bahner, C. T., and Bates, A. L., *Growth*, **19**, 1 (1955). Lewis, M. R., Hughes, B., and Bates, A. L., *Growth* (in the press).

² Lewis, M. R., *Science*, **118**, 355 (1953); *Growth*, **18**, 97 (1954).

Responses of Domestic Animals to Infections of *Trypanosoma vivax*, *T. congolense* and *T. brucei*

IN an extensive investigation, involving more than a hundred domestic animals in the Gold Coast (goats, sheep and horses), on the hæmatological and biochemical changes produced by trypanosomiasis infections, forty animals have died with noteworthy findings.

The types of response could be arranged in four categories: acute, sub-acute, chronic and cryptic. In most cases, the animals developed a severe anæmia which in the acute response proved rapidly fatal (about six weeks). An attempt at recovery of erythrocyte values was made in the sub-acute response, followed by a fall which terminated in death in about three months from inoculation. Chronic responses showed an initial fall in red cells with subsequent recovery, often to normal levels, which was maintained over a long period. Of the animals which have died in the chronic response group, there was often a terminal fall in red-cell count. In the cryptic infections in which no trypanosomes were demonstrable in the peripheral blood, there were characteristic changes in the red-cell count which resulted in anæmia similar to that observed in the other categories. The erythrocyte sedimentation-rate in the goats remained normal (0-1 mm.) throughout the entire period, while in the sheep and horses it gradually increased. The leucocytes fluctuated in total count and the differential percentages varied, but they have not, as yet, been correlated with other recorded data.

An improved method of estimating the degree of trypanosome infection in the peripheral blood has been devised. Wide variation occurred from day to day in the number of trypanosomes in the *T. vivax* and *T. congolense* infections, with long periods when none could be found in the peripheral blood. In the case of *T. brucei*, trypanosomes were only seen on one or two occasions even though the infection ex-

tended over several months. This is of interest in view of the low incidence of *T. brucei* hitherto recorded in game and domestic animals of the Gold Coast. No trypanosomes occurred in the peripheral blood in cryptic infections.

Blood sugar, bilirubin and specific gravity remained unchanged in most of the animals. In the final stages of the disease, the animals were often emaciated and showed a severe reduction in weight. Temperature readings revealed no significant variations.

Histopathological material was collected from all the dead animals, some of which showed interesting pathological changes in the lung tissue with extensive congestion of the alveoli.

A detailed account of this investigation will be published elsewhere, as well as a report of the histopathology.

E. E. EDWARDS

University College of the Gold Coast,
Achimota.

J. M. JUDD
(Laboratory Superintendent)
F. A. SQUIRE
(Director)

Department of Tsetse Control,
Achimota Research Station,
Gold Coast.
Dec. 1.

5-Hydroxytryptamine in Serum

THE pharmacologically active substance 5-hydroxytryptamine is known to be liberated from platelets during clotting. The amount estimated in serum has, however, been found to depend on the way the serum is prepared, and the purpose of this communication is to direct attention to this phenomenon, which may cause discrepancies between the results of different workers.

Human blood was withdrawn from an arm vein into a glass syringe which had been treated with a liquid silicone (D.C. 550). The first 2 ml. of blood was taken in a separate syringe and discarded to avoid contamination with tissue thromboplastin.

The blood was allowed to clot at 37° C. in the following ways: (1) The blood was placed in a glass test-tube and allowed to stand without agitation for 30 min.; (2) the blood was placed in a glass test-tube containing a glass marble; the tube was stoppered and placed in a machine which tipped the tube through $\pm 20^\circ$ from horizontal at a rate of 15 cycles per min., for 30 min.

In each case the clotted blood was centrifuged at 3,000 rev./min. for 30 min., by which time the serum was free of platelets. The serum was transferred to a small glass bottle and stored at -17° C. until extracted.

Acetone extracts of the serum were assayed on the rat uterus, as recommended by Amin, Crawford and Gaddum¹. An attempt to simplify this procedure by testing the serum directly on the uterus was unsuccessful owing to the presence in the serum of a substance causing a slow contraction of the uterus and not antagonized by lysergic acid diethylamide. The effects of the acetone extracts were invariably abolished by this drug, as were those of 5-hydroxytryptamine itself. Zucker and Borrelli² tested serum directly on the rat colon and do not seem to have met complications.