

the leucocytic count of the blood obtained directly from the marginal ear vein of the rabbit may be produced, even with causal factors of a mild and apparently harmless nature.

The fact that considerable experimental work on the leucocytic count has been carried out upon the rabbit appears to warrant the report of these observations.

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Effect of Activity on the Excitability of Cardiac Muscle.

WALTER E. GARREY AND RICHARD ASHMAN.

From the Department of Physiology, School of Medicine, Vanderbilt University.

In a preliminary study undertaken to ascertain the changes produced in excitability of the excised turtle ventricle by rest and activity, 11 hearts were used from *Chelydra serpentina* and *Emys* sp. The Lapique potentiometer and chronaximeter were used. The stimuli were applied by way of non-polarizable electrodes.

The results, confirming and extending those previously reported by Garrey and Ashman¹ and by Ashman and Hafkesbring,² were variable, but certain conclusions clearly emerge.

1. Excitability, expressed either as rheobase, chronaxie or least time is greatly influenced by activity.

2. In hearts in good physiological condition when excised (3 examples) there was a treppe in excitability, comparable to the treppe in contractility, and the treppe was demonstrable both in rheobase and "least time". Our evidence shows, although less clearly, that there was a treppe in chronaxie. Expressed in terms of quantity of electrical energy required to excite the tissue, activity definitely increased the excitability.

3. In 6 other hearts, also in good or fair physiological condition, it was impossible to demonstrate a definite treppe in rheobase, yet in these the treppe in least time and probably, therefore, in chronaxie was definite or striking. Compared with the resting heart, after several responses the least effective duration of a current of constant strength may be decreased by 20 to 25%.

4. In 2 ventricles the manifestations of fatigue completely masked the treppe. In these the rheobase was markedly raised by

¹ Garrey, W. E., and Ashman, R., *Am. J. Physiol.*, 1931, **98**, 102.

² Ashman, R., and Hafkesbring, R., *Am. J. Physiol.*, 1928, **85**, 347.

activity, although the chronaxie was shortened. In terms of the quantity of energy required to excite the tissue, activity here decreased the excitability. This again illustrates a point previously stressed,³ *i. e.*, that the chronaxie is not necessarily a measure of excitability.

That the observed changes in excitability were not an effect of the local action of the stimulating current was proved by the appearance of similar changes when activity was induced by induction shocks applied to another region of the ventricle.

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Specificity of Pathogenic Infections of the Kidney.

H. T. BEACHAM. (Introduced by Alton Ochsner.)

From the Department of Surgery, Tulane University School of Medicine.

From 4 to 6 twenty-four-hour agar slant cultures of colon bacillus and *Staphylococcus aureus* suspended in 3 cc. normal saline were injected transperitoneally into the left renal artery in 21 dogs. According to the length of time the animals survived 6 different groups were recognized as follows: Group 1, two animals survived from 5½ to 6 hours; Group 2, six survived 14 to 18½ hours; Group 3, four survived from 22 to 29 hours; Group 4, two survived 42 to 72 hours; Group 5, four survived 10 to 14 days; Group 6, three survived 16 to 21 days.

A daily record of the temperature and the examination of catheterized specimens of urine was kept. On account of the ease of obtaining sterile urine, multiparous, young animals were used. All animals were autopsied immediately after death to exclude post-mortem changes. Sections were preserved in Zenker's solution, and stained with hematoxylin-eosin.

The presence of both organisms in the glomerular capillaries, Bowman's capsule, disproved Crabtree's theory that cocci are secreted by the glomeruli and bacilli by the tubules. All evidence pointed to the fact that blood stream infections produced cortical abscesses while lymphatic infections produced medullary abscesses.

Conclusion. (1) Colon bacilli and staphylococci are commonly present in the urine of so-called normal dogs. (2) Organisms are

³ Ashman, R., and Garrey, W. E., *Am. J. Physiol.*, 1931, **98**, 109.