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A simple method of demonstrating muscular hypertonicity in anaphylactic shock: Crop tonus in pigeons.

P. J. HANZLIK and A. B. STOCKTON.

[*From the Department of Pharmacology, Stanford University School of Medicine, San Francisco, Calif.*]

There has been lacking a suitable, simple method for demonstrating the muscular hypertonicity of anaphylactic shock in the intact organism. The following method answers the purpose admirably.

A sensitized pigeon of about 300 to 400 gm. body weight, and deprived of its food over night, is tied, back down, by fixing its legs and wings conveniently to a small operating board such as is used for guinea pigs. A head holder is unnecessary. Then a balloon made from a fish-skin condom, tightly attached to the end of a rubber catheter (No. 20 French) so as to form a balloon of about 10 by 4 cm. when distended, is introduced directly into the crop. The introduction is facilitated by first collapsing the balloon and then bringing it in close apposition to the catheter, which is stiff and carries the balloon with it. The catheter is now attached to a T-tube, which in turn is joined by rubber tubing to a small tambour. Then the balloon is distended by blowing air through one arm of the T-tube, and the system adjusted so as to keep the crop moderately well distended with air and yet permit a record of tonus changes from the tambour on a slow kymograph. Presently large peristaltic waves may begin, but these are not indispensable to the experiment. As soon as a control record is secured, the antigen is injected into a wing vein (right)

in the axillary region, using an ordinary Luer syringe and needle of 23 or 26 gauge.

Almost immediately after injection of from 0.2 to 0.5 cc. of the antigen, there is a sharp and marked rise in tonus accompanied by other symptoms (lachrymation, salivation, dyspnea, convulsions, etc.) of anaphylactic shock. Since the tonus increase occurs in decapitated, curarized, atropinized, epinephrinized, hepatectomized and anesthetized pigeons, the seat of stimulation is in the crop musculature itself independently of the brain, autonomic nerves, and liver (anaphylatoxin). Moreover, the stimulation is completely removed by papaverine, a direct muscular depressant. Hypodermic, intramuscular and intraabdominal administrations of the antigen are ineffective.

The same method gives interesting and striking effects with physically treated serum and with drugs which will be reported later.

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The presence of iron depositing bacteria in milk.

C. S. MUDGE.

[*From the University of California, Davis, Calif.*]

Harder[1] has made a careful study of the group of microorganisms, generally classed by him as the trichobacteria, to which he ascribes the deposition of certain sedimentary iron ores. Although Harder devotes himself largely to these trichobacteria, he mentions finding a number of bacteria (eubacteria) which were also able to precipitate ferric hydroxide and other ferric salts from media containing iron salts of organic acids. Since these iron depositing bacteria are soil types, it is not surprising that to a greater or lesser degree they should be found in milk and its products.

The ferric ammonium citrate media of Harder was used both as a broth and as a solid medium. On the agar were obtained colonies described by Harder as typical; that is, large, irregular,

[1] Harder, E. C., U. S. Geol. Survey Professional Paper 113, 1919.