Experiments are under way which attempt to further evaluate responsibility for the effects produced between hormone and traumatic stimulation.

6916

Pathogenicity of Serratia Marcescens (Bacillus Prodigiosus).

PAUL D. ROSAHN AND C. K. HU. (Introduced by L. Pearce.)

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In connection with an investigation to determine the etiological agent responsible for a pandemic disease of rabbits[1], filtration experiments were conducted, and all filter candles were tested in the usual manner with a strain of *Serratia marcescens* (*Bacillus prodigiosus*) obtained from Institute stocks. As the work progressed, a fortuitous observation led to an investigation of the pathogenicity of this organism. The growth from a 24 hour agar slant was suspended in 10 cc. of Locke's solution, and rabbits and mice were injected with this material. Rabbits receiving 0.3 cc. intracerebrally, or 1.0 cc. intraperitoneally, intravenously, or intratesticularly, all died within 24 hours, and all mice injected with 0.6 cc. intraperitoneally or 0.05 cc. intracerebrally also died within 24 hours. A benign course attended the use of smaller amounts of the organism.

The gross findings at autopsy were striking. Hemorrhagic peritonitis with effusion, punctate hemorrhages in the adrenals, hemorrhagic lymph nodes, and small areas of focal necrosis in the liver were constant findings. An occasional animal had consolidated patches in the lungs. The spleen was usually large and swollen. *Bacillus prodigiosus* was recovered in pure culture from the brain, liver, spleen, lymph nodes, kidneys, lung, and blood.

A second strain of the organism was obtained from another laboratory. Morphologically and culturally it was identical with our own strain. When injected into animals in the large doses previously mentioned, it too caused death in less than 24 hours, and the same pathological picture was present.

Bertarelli[2] reported the death of rats, guinea pigs, and mice fol-

[1] Pearce, L., Rosahn, P. D., and Hu, C. K., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 894.

[2] Bertarelli, E., *Centr. Bakt., 1. Abt., Orig.*, 1903, **34**, 193, 312.

lowing the inoculation of massive doses of *Bacillus prodigiosus.* Our findings confirm Bertarelli's observations, and are of interest from two points of view, (1) that extensive hemorrhagic lesions and death of small laboratory animals follows the introduction of massive doses of an organism which in the ordinary sense is non-pathogenic. (2) When *Bacillus prodigiosus* is used as a test organism in filtration experiments, its presence in the inoculum after filtering through a leaky candle, might result in obscuring or even altering the experimental findings, since the organism itself has certain toxic properties.

6917

Structural Changes in Anterior Horn Cells Following Central Lesions.

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The rôle of the impulses which impinge upon the cells of the "final common pathway" in maintaining their normal functional and structural character has not been fully appreciated. Warrington[1] demonstrated that after section of the dorsal roots of the post-thoracic cord segments, anterior horn cells on the same side became structurally altered, some of them ultimately degenerating. Cells on the contralateral side were also observed to be effected in certain cord segments, apparently those concerned with crossed reflexes. These observations did not include studies of the anterior horn cells after their dissociation from impulses descending to them from higher centers. The evidence so far accumulated has not shown whether or not motor horn cells in the spinal cord are effected directly after decortication or section of the pyramidal tracts, or trans-section of the spinal cord. The following experiments were performed with this question in mind.

In the first series of 17 rats, unilateral section of the cortico-spinal tract on the base of the medulla was performed. The observations on the functional disorganization of these rats will be reported later. In a second series (10 rats) the dorsal roots of the fifth, sixth, seventh, eighth cervical and the first thoracic segments

[1] Warrington, W. B., *J. Physiol.*, 1898, **23**, 112.