82 (1829)

The effect on blood pressure of removal of portions of the spinal cord in the thoracic region.

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The argument for the functional independence of the peripheral ganglia of the sympathetic nervous system has rested largely on the experiments of Goltz, who removed portions of the thoracic region of the spinal cord after previous transection. Two conditions should be sharply distinguished here: (1) when the transection of the spinal cord is in the lower cervical region above the level of outflow of the sympathetic fibers from the thoracic roots. This condition has been considered by Sherrington,[1] who showed that the blood pressure fell markedly on actual destruction of the spinal cord 300 days after the first transection. (2) When the spinal cord is transected in the upper thoracic region, leaving a functional connection of the medulla oblongata with the periphery through a few rami communicantes of the sympathetic system emerging with the roots of the upper thoracic nerves. Miss Yates[2] showed that systemic blood pressure fell on paralysis of the medulla oblongata some days after the transection of the spinal cord. It remains to determine the actual effect upon systemic blood pressure of removal of portions of the spinal cord below the level of transection after an interval of recovery.

Cats were used in our experiments. The spinal cord was transected under aseptic conditions at varying levels from the second to the ninth thoracic, and the animal allowed to recover. Some days afterward, the animal was again anesthetized and the systemic blood pressure recorded from a cannula in one carotid artery. A mercury manometer was used. In one cat, in which the level of transection was just below the fifth thoracic root, the mean level of blood pressure was 114 millimeters of mercury six days after the transection. The blood pressure remained at 78

[1] "The Integrative Action of the Nervous System," 1906, pp. 241–243.

[2] *American Journal of Physiology*, 1921, lvii, 68.

millimeters after removal of a section of the spinal cord eight centimeters long below the level of the first transection. Similar results were obtained in other animals. A greater fall of blood pressure followed removal of the lumbar and sacral portions of the spinal cord, below the level of outflow of thoracic sympathetic fibers. Any interference with the function of the upper portion of the thoracic cord or the medulla oblongata was always followed by an extreme depression of blood pressure, whatever the condition of the spinal cord. The results indicate the functional dependence of the peripheral ganglia of the sympathetic system upon the central system.

83 (1830)

A simple quantitative precipitation reaction for syphilis.

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The proposed method possesses the following three advantages over the Meinicke,[1] Sachs and Georgi,[2] and Dreyer and Ward[3] (Sigma) precipitation reactions.

1. The diluted antigen possesses considerable stability, rendering it unnecessary to dilute fresh antigen before using in the tests.

2. The strongly positive serums show, in most cases, spontaneous precipitation and the test as a whole is completed after 3 hours incubation in the water bath.

3. The precipitates can be easily distinguished with the naked eye.

The Method.—The antigen is prepared according to Neumann and Gager.[4] After extracting the dried heart muscle with ether and drying as indicated by these authors, 5 c.c. of absolute alcohol is added to each gram of material.

The alcoholic extraction is carried on for about 10 days in the ice box. It is then filtered and fresh alcohol added to the extent

[1] *Berl. klin. Wchnschr.*, 1918, iv, 83; *Muench. med. Wchnschr.*, 1918, lxv, 1279, and ibid., 1919, xxxiii, 932.

[2] *Med. Klinik*, 1918, xxxiii, 805.

[3] *Lancet*, 1921, xix, 956, Old Series C.C.

[4] *J. Immun.*, 1917, ii, 573.