

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.**

By **R. L. KAHN.**

[From Bureau of Laboratories, Michigan Department  
of Health, Lansing, Mich.]

The proposed method possesses the following three advantages over the Meinicke,<sup>1</sup> Sachs and Georgi,<sup>2</sup> and Dreyer and Ward<sup>3</sup> (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.<sup>4</sup> 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

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<sup>1</sup> *Berl. klin. Wchnschr.*, 1918, iv, 83; *Muench. med. Wchnschr.*, 1918, lxxv, 1279, and *ibid.*, 1919, xxxiii, 932.

<sup>2</sup> *Med. Klinik*, 1918, xxxiii, 805.

<sup>3</sup> *Lancet*, 1921, xix, 956, Old Series C.C.

<sup>4</sup> *J. Immun.*, 1917, ii, 573.

of the amount filtered off. The second extraction is carried out for about a month in the ice box. Both filtrates may be used as antigens.

Add rapidly three parts of salt solution to 1 part of antigen. The mixture should be opalescent and but slightly milky. No precipitate should form after standing over night at room temperature. Antigens conforming with these requirements have been kept for 2 weeks without any apparent change in antigenic properties.

Add 0.1 c.c. of antigen to 0.3 c.c. of clear inactivated serum and incubate in the water bath. The strongly positive sera show immediate clouding and, within 5 min., visible precipitation. For uniformity, the tests are read after 1 hour and 3 hours incubation. Those showing marked precipitation at the end of 1 hour are considered strongly positive; marked precipitation at the end of 3 hours are considered positive; weak precipitation, weak positive and questionable, doubtful positive.

Of 1,119 comparative tests carried out with the precipitation and Wassermann reactions as performed in this laboratory, 98 per cent. showed agreement. It is hoped that this test will form an important supplement to the Wassermann test.

84 (1831)

**A simple quantitative precipitation reaction for syphilis—micro procedure.**

By R. L. KAHN.

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The precipitation reaction presented in the preceding paper may be employed also as a microscopic procedure. Prepare hanging drop preparations in the usual manner by mixing a small drop of serum with the same amount of antigen. Read results after 1 and 3 hours incubation at 37.5° C. Those sera showing precipitation give the appearance of clumps of minute globules, while the negative sera appear homogeneous. This procedure, however, requires much experience and care in its manipulation.

The following micro-method is, in our experience, far simpler to execute and is recommended: Pipette 0.03 c.c. quantities of