antidysentery, antityphoid, and antiproteus bacteriophages did not appear to be influenced in the least by the dye. The susceptibility to methylene blue appears therefore to be peculiar to the 2 races of staphylococcus bacteriophages examined for this property. This susceptibility may possibly extend itself to bacteriophages active for other non-intestinal bacteria as well as to other antistaphylococcus bacteriophages. The mechanism of the inactivation is not exactly clear, but will be studied further. We have been able to satisfy ourselves that it is not in any way related to pH changes induced by the dye in the medium.

4159

Spontaneous and Forced Dissociation of Brucella Abortus (Bang).

B. S. HENRY. (Introduced by T. D. Beckwith.)

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In making a study, with Dr. J. Traum, on the causes of discrepancies occasionally encountered in testing cattle sera for *Br. abortus* agglutinins, it was noticed that different lots of antigens from certain strains gave varying reactions with the same sera. It was necessary to conclude that the antigen varied because all negative sera gave similar reactions on such lots of antigen and these same sera gave only definite negative results with antigens from many other strains of *Br. abortus*.

To determine the character of the variation mentioned above, glucose-glycerine agar plates were dallied with suspensions of the growth to be used for antigens. At the end of a 4-day incubation period, colonies of 2 distinct and constant types were present. One is the usual *Br. abortus* colony, moist, clear and only slightly granular. By transmitted light, these colonies show a blue-green florescence. The second type of colony is opaque, very definitely granular, and grows more rapidly than does the clear type. Subcultures from the clear type are readily suspended in salt solution and remain suspended for several days. The opaque type, on the other hand, is suspended with difficulty and spontaneously agglutinates within 24 to 48 hours. The subcultures of the opaque type have remained free of clear type colonies through several transplant generations. The clear cultures, however, continue to produce an occasional opaque colony even after several platings.

Plates made from 23 stock strains of *Br. abortus* showed none of these strains to be entirely free of both types, although the ratio of opaque to clear colonies varied over a wide range.

Before the above-mentioned spontaneous changes were noted, the author had been able to produce opaque colonies from typical *Br. abortus* cultures by growing the organisms in glucose-glycerine broth to which had been added 10% of serum from rabbits immunized against *Br. abortus*. The changes which occurred in these cultures were similar to those occurring spontaneously, but were more complete. All colonies appearing on plates made from 2 week old immune broth cultures were of the opaque type in the 6 strains used.

As the 2 types of colonies occurring spontaneously, as well as those obtained by the use of homologous immune serum, agree with *Br. abortus* as to morphology, staining reaction and carbohydrate fermentations, and as, in at least one strain, they both produce *Br. abortus* agglutinins when inoculated into rabbits and guinea pigs, it seems certain that dissociation is responsible for the 2 types. The terms "R" and "S" have been intentionally omitted until the results of virulence tests now in progress have been determined.

4160

Mechanism of Actions and Toxicity of Nitroprusside.

CHAS. C. JOHNSON. (Introduced by P. J. Hanzlik.)

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The actions and toxicity of sodium nitroprusside ($Na_2Fe(CN)_5NO2H_20$) have been investigated periodically during the past 42 years without, however, definite establishment of the mechanisms on which the actions depend, or indications of its possible usefulness. The original claims of L. Herrmann[1], of his pupil Davidsohn[2], and of Arntz[3] and Cromme[4], that the actions of nitroprusside depended upon liberated hydrocyanic acid suggested the possible use of the compound as a respiratory stimulant. The actions of the compound, therefore, have been re-investigated along different lines with the following results.

[1] Herrmann, *Arch. für Physiol.*, 1886, xxxix, 419.

[2] Davidsohn, *Diss.*, Königsberg, 1888, 34.

[3] Arntz, *Diss.*, Kiel, 1897, 24.

[4] Cromme, *Diss.*, Kiel, 1891, 16.