Agglutinated streptococci produce a type of bacteriemia in dogs with injured valves which simulates the bacteriemia found in human cases of subacute bacterial endocarditis.

3618

Filtrates From Scarlet Fever and Surgical Hemolytic Streptococcus Infections.

RALPH A. KINSELLA, O. GARCIA AND J. WADE.

From St. Mary's Hospital, St. Louis University School of Medicine.

In scarlet fever it is held that there is a special strain of hemolytic streptococcus responsible for scarlet fever. Nevertheless, by agglutination tests, all strains isolated from cases of scarlet fever are not identical. It has not been argued that a special phase of reactivity on the part of the host can lead to the clinical picture of scarlet fever after infection by any hemolytic streptococcus.

The criteria for investigating the specific nature of a given strain of hemolytic streptococcus, whether from scarlet fever or from other clinical infections, have been the preparation of a filtrate from special culture medium and the testing of such filtrate for its resistance to heating, its capacity to produce a dermal reaction in a susceptible subject, and its neutralization by anti-scarlet fever serum in skin tests.

The following would indicate either that these criteria are not sufficient to establish the specific qualities of a given strain, or that the phase of reactivity of a patient is important in determining whether infection by hemolytic streptococcus will result in scarlet fever or some other clinical picture. The filtrates were studied from the throat cultures of three cases of scarlet fever, two of which were caused by infection of wounds; and of three cases of bacteriemia following operations, in one of which the attending nurse developed scarlet fever.

In the three cases of scarlet fever the cultures from the throat failed to yield hemolytic streptococcus. In two of these cases, one of which was surgical scarlet and the other the usual variety, the predominating organisms were non-hemolytic streptococcus which were immediately used to infect filtrate broth. Subcultures of this broth failed to show any colonies of hemolytic streptococcus on blood agar plates. Many other cases of scarlet fever at the Isola-

tion Hospital were studied, but all showed rich throat cultures of hemolytic streptococcus. Filtrates from the two cultures of non-hemolytic streptococcus were thermolabile, gave positive skin reactions in the arms of two Dick-positive subjects and these reactions were neutralized by Dick anti-toxin.

Of the three cases of hemolytic streptococcus infectoin, not scarlet fever, there was bacteriemia arising from mastoiditis in two instances, and from infected hemorrhoids in the other. In one of the cases of mastoiditis, a young adult, there was no history of previous scarlet fever.

In these three cases filtrates made from strains isolated from blood cultures were thermolabile, gave positive skin tests in two Dick-positive subjects, and the tests were prevented by Dick anti-toxin.

The meaning of these observations can be determined only when anti-toxin serum is produced in suitable animals, using the filtrates above, and the value of such anti-toxin tested in scarlet fever.

This is a preliminary report.

3619

Lactic Acid Formation in Muscle Extracts.

H. A. DAVENPORT AND MARGHERITA COTONIO.
(Introduced by P. A. Shaffer.)

From the Department of Biochemistry, Washington University School of Medicine.

Embden and Haymann[1] demonstrated that the addition of glycogen and sodium fluoride to freshly prepared muscle press-juice caused a very marked decrease in the inorganic phosphate which was present in the extract. Sugars were inactive in the reaction. The disappearance of the inorganic phosphate was interpreted as an esterification process in which hexose phosphate (lactacidogen) was formed. Meyerhof[2] showed that there is a production of lactic acid during the course of glycogen degradation by muscle extracts, and that the phosphates appear to take an active part in the changes involved. Fluoride caused a decrease in the production of lactic acid as well as a disappearance of the inorganic phosphates.

The fate of the added glycogen with reference to the amount of