SECTION ON BACTERIOLOGY

Chairman: P. A. TETRAULT, Purdue University

Good interest was maintained throughout the session of the section on Bacteriology. About 25 or 30 members were present during the greater part of the session. Since the program was short, no time limit was placed on discussion. The paper on *Streptococcus algalactiae* and that on immunization against rabies were discussed in considerable detail. A. R. Jamieson, of the Lilly Research Laboratories, was elected chairman of the section for the coming year.

ABSTRACTS

Disinfection. P. A. TETRAULT, Purdue University.—A general review of the action of disinfectants from bacteriological and chemical standpoint is presented. The influence on the rate of disinfection of such factors as change in concentration, temperature, pH, chemical constitution of disinfectant, and presence of organic matter is outlined.

Immunization against rabies using vaccines containing various amounts of protein. C. A. BEHRENS, L. B. SCHWEIGER, and J. L. REEVES, Purdue University.—All vaccines employed in prophylaxis against hydrophobia contain the virus of rabies and also a great deal of foreign material, practically all of them being suspensions of the infected nervous tissue of rabbits. Much of this undesirable foreign substance can be removed by precipitating it at its iso-electric point. These experiments employed vaccines with varying amounts up to about 60% of this inert material removed. The vaccines were prepared by adding homogeneous rabic brain emulsions to 0.2, 0.4, 0.5, 0.6, 0.8, 1.0, and 1.1 mls. of 1/100 molar citric acid, this procedure removing 15, 24, 30, 34, 43, 58, 62% of the protein. Their minimum lethal doses are 0.5 ml. injected intracranially of dilutions of 1 to 14000, 12000, 12000, 12000, 50000, 3000, and 2000, respectively. When 0.5 ml. of a rabic brain emulsion is similarly injected in rabbits, a dilution of 1:25000 is fatal; a dilution of 1:26000 is non-infective. Rabbits were immunized by injecting 2 or 10 mls. daily for 10 days and, consequently, received 20 or 100 mls. of these vaccines, subcutaneously or intravenously. Ten or 28 days after their last vaccine treatment they were tested to ascertain their degree of resistance by injecting intracranially 0.5 ml. of a 1:20000 dilution of rabic emulsion. All vaccinated rabbits, irrespective of the amount, the type, or the method of administration of the vaccine, were able to withstand two minimum lethal doses 10 or 28 days after receiving their last vaccination. Rabbits inoculated intravenously with 2 ml. doses, receiving 20 mls. of the vaccine, seemed to possess greater resistance against 3 minimum lethal doses than those injected subcutaneously when tested 28 days after their last vaccine treatment. Fifty per cent of the rabbits injected daily subcutaneously or intravenously with 10 ml. doses, receiving 100 mls. of the vaccine and tested against

3 minimum lethal doses 10 or 28 days after vaccination, are immune to rabies. None of the immunized rabbits withstood 4 minimum lethal doses.

Factors influencing the growth of *Oospora lactis* in cream. E. H. PARFITT, Purdue University.—When cream is held under farm conditions, the factors influencing the growth of *Oospora lactis* are found to be the time and temperature, the amount of cream surface area exposed to the air, the degree of agitation of cream during storage, the method of adding fresh cream to the accumulated supply, and the milk-fat content of the cream. Molds in cream are of interest in that a knowledge of their population may be used as an index of the state of decomposition of the cream.

Biophysical study of *Oospora lactis*. E. H. PARFITT, Purdue University.—From sour cream and butter were isolated what appear to be eight different varieties of *Oospora lactis*, which were found to differ in macroscopic and microscopic appearance, ability to hydrolyse milk fat, production of spores and mycelia when grown in substrates of different pH levels, ability to produce an odor, thermal death points, and optimum growth temperatures.

The detection of chlorine-resistant bacteria in a swimming pool. G. H. ECHELBARGER, Purdue University.—This paper reports the number of organisms present in a chlorinated swimming pool and the effect of certain physical and chemical factors upon holding samples.

The application of the phosphatase test to butter. W. H. BROWN, Purdue University.—The phosphatase test as it is used for milk has been applied to butter to determine whether or not the cream has been properly pasteurized prior to churning. The Scharer technique has been followed, with 1 ml. of butter serum used to replace the 1 ml. of milk. The butter serum is collected by centrifuging the sample of melted butter. The test shows that some samples of the commercial butter react phosphatase-positive. A large percentage of the samples that gave a positive phosphatase test, when subjected to the keeping-quality test of 15.4° C. for 10 days, dropped in score more than did those that gave a negative phosphatase test. The method used to pasteurize the cream has been found to influence the number of samples reacting to the test, and the test points out that pasteurization is an individual plant problem.

Milking machines a source of thermoduric bacteria. E. H. PARFITT, Purdue University.—In one of the large middle western cities where difficulty was found in maintaining a satisfactory bacterial count in adequately pasteurized milk, investigation showed that the incoming milk from certain territories was heavily inoculated with thermoduric bacteria, and these thermoduric bacteria were associated with insufficient care of milking machines. The organism isolated was a gram-positive micrococcus, which, when growing on nutrient agar, produced in from four to six days a yellow pigment, did not reduce methylene blue or litmus, and had a majority thermal death point between 65 and 67° C. when held for 30 minutes of time.