

With a view to treatment of staphylococcal mastitis, the sulphathiazole resistance of a large number of staphylococci was determined and some experiments were instituted in an endeavour to obtain the required concentration in milk by oral administration of the drug. Though a greater concentration of the drug appeared in the secretion from clinically affected quarters than from normal quarters, the dosage scale required was too expensive to merit further investigation at present. Studies will be made of treatment of suitable cases by udder infusion with emulsions of sulphathiazole and of sulphadiazine and by the use of staphylococcal toxoid.

Experiments were begun to determine a quick and reliable method for demonstrating *Str. agalactiae* in milk samples.

Studies of Milking Methods.—The “milk-flow recorder” apparatus has been used during the season to investigate several aspects of the milking process.

Under carefully controlled standard milking conditions the characteristics of the milk-ejection curve have been measured and described. Twelve cows with very variable reputations as milkers and of variable productive efficiency were employed. The following generalizations have been made: average milk flow tends to decline toward the end of the season, so that the time taken to milk does not decrease; machine strippings do not increase with lactation in actual amounts, but do so on a percentage basis, since total yield drops; starting-time tends to increase and become erratic toward end of lactation, the average time taken for milk to be “let down” being 0.79 minute and average milking-time 4.37 minutes. This latter is much shorter than that measured in the field—8.3 minutes—suggesting that there is a tendency for cups to be left on longer than necessary. To obviate this, a new type of “sight glass” for determining when milk flow has ceased has been designed.

The influence of the pulsator and of variations thereto have been measured. Results showed that under otherwise normal milking conditions the application of a greatly reduced pulsator stimulus had no effect upon milking rate. It was also shown that once milk flow starts with pulsator operating, cows will continue to milk if the pulsator is stopped: that normal milk let down is not obtained if an attempt is made to commence milking without the use of the pulsator.

The rate of application of the “squeeze” and the “release” by the pulsator has likewise been shown to have no effect on milking rate. Pulsator speeds of 21, 42, and 84 pulsations per minute at normal vacuum, and vacuum levels of 10 in., 14 $\frac{3}{4}$ in., and 19 in. at normal pulsator rate of 42 per minute, did not produce significant differences in milking rate. These experiments are of special interest in view of the emphasis often placed on the importance of correct pulsation.

Apparatus for measuring intra-mammary pressure—of importance in relation to the letting-down of milk, non-stripping, and mastitis—is in process of development. The hormone aspects of the milk let-down process have been the subject of preliminary studies.

A survey of Northland herds using non-stripping has been made to add to our information on the machine-milking methods and equipment being used successfully for this purpose.

In co-operation with the New Zealand Dairy Board herd-recording department, a detailed examination of the performance of milking-machines in relation to mastitis in 18 herds over three years has been completed. It was found that, based on the incidence of clinical quarters, there was no difference in the incidence of mastitis in herds where milking-machines and conditions of use were classified as “good” as compared with herds where the classification was “average or poor.” The performance of the machine was classified after taking into consideration pulsator ratio and performance, operation of relief-valve, condition of inflations, the claw, air-hole clearance, speed of milking, and the pump efficiency.

Artificial Insemination. After the disappointing results of last year it is pleasing to report a much more satisfactory situation as a result of the past season’s work. Following