

*Mastitis Investigation.*—The final reports of the work on effect of mastitis as indicated by the Hume modification of the bromthymol blue test on the composition and cheesemaking properties of the milk have now been forwarded for publication. Several reports on the work have already been published, but the preparation of the remainder was interrupted by war emergency work. A description has been given of the milking-machine bucket and claw devised at the Institute for the collection of complete deliveries of milk from individual quarters of the cow's udder. These devices have since been widely used by the New Zealand Dairy Board in an investigation of the yield of milk from quarters affected by mastitis.

The composition of milk from quarters affected by mastitis as compared with the composition of milk from a healthy quarter of the same udder has been studied both at Palmerston North and at Hawera. The changes in composition were similar to those reported by other workers—viz., a lower acidity, a lower chlorine content, a lower solids-not-fat content, a lower lactose content, a lower casein content, and higher total nitrogen content, and a softer curd in the milk from the positive quarter. The yield of milk from the positive quarter was on average 28 per cent. lower than the yield from the corresponding negative quarter.

Provided that the milk was pasteurized before use, bromthymol blue positive milk of normal appearance included in milk for cheesemaking had little effect on the quality of the cheese made from the milk in proportions up to 25 per cent. Use of the milk in the raw state caused the development of inferior flavours in the cheese. Even when the milk was pasteurized there was an effect on the rennet coagulation and in the appearance and moisture-binding properties of the curd during cheese-manufacture. The cheese milk containing 10 per cent. positive milk gave a softer coagulation with rennet and a paler curd. Inclusion of milk abnormal in appearance in milk for cheesemaking caused the production of inferior cheese.

*Dairy-factory Drainage.*—A final report on the investigation of the effect of dairy-factory drainage on the quality of the waters in some Taranaki streams has now been prepared for publication. When the dilution was at the rate of 1 in 4,000, all trace of the drainage had disappeared within 400 yards of the factory outfall. When the dilution was only 1 in 100, the effect of the drainage was evident at two miles, and did not disappear completely until approximately three and a half miles below the outfall. The general conclusion was that with reasonable dilution the discharge of dairy-factory drainage into a well-oxygenated stream has only a temporary effect on the quality of the water.

*Standards for the Dairy Industry.*—The Institute has taken a leading part in the work of the Dairy Products and Requisites Committee of the New Zealand Standards Institute in the preparation of standard specifications for the dairy industry.

*Starters for Cheese-manufacture.*—Six unrelated single-strain cheese cultures are now used very widely in cheese-factories. The commercial demand for starters in New Zealand is satisfied to a large extent by the Institute Laboratory. A significant portion of our efforts is devoted to maintenance of these cultures in a state of maximum activity by a regular replating procedure and to a search for other unrelated cultures. A strain which was obtained from England about a year ago has so far not been attacked by a bacteriophage in New Zealand. This suggested that strains unrelated to our present collection are more likely to be obtained from abroad rather than isolated from local material.

The various devices designed by dairy instructors, factory-managers, and commercial firms to protect starters from air-borne infection are being kept under observation in commercial factories as opportunity offers. Most of them desire to avoid the expenses of a special isolated starter building by making it possible to prepare the bulk starter within the factory. Large cotton-wool-filled filters fitted to sealed starter-cans are the simplest of the protective devices and seem to be remarkably effective, so much so that it is actually possible to prepare bulk starter successfully in the factory provided that starters are used on the rotational system. The isolated starter building is still, however, most effective and convenient because it enables the whole operation of starter preparation to be carried out under ideal conditions.