Experiments on the Effect of Pasteurization of Milk on Cheese-texture.—The first series of experiments was carried out with whole milk supplied by the Massey Agricultural College herd during the period January–April, 1929. As explained in detail in the report of this Institute for the year ending 31st March, 1929, the mixed milk was divided into three equal portions daily. One cheese was made from raw milk, a second from milk pasteurized by the flash method at temperatures varying throughout the period from 145° F. to 175° F., and a third was made from milk pasteurized by the holding method at temperatures varying from 140° F. to 150° F. Careful control of the purity of the raw milk was exercised throughout the period, and it was submitted to regular bacteriological and chemical analysis. Analyses were also made of the cheese at regular intervals. All of these analyses were compared with those of mixed milks supplied to factories in the neighbourhood. The cheeses were examined at definite ages till they were ready for sale. The following results were obtained from these experiments in this preliminary investigation.

(1) Effect on texture: Pasteurization of milk had no influence upon the production of mechanical holes. These were experienced from time to time, but no great trouble was noticed at any one time, and it appeared as frequently in raw-milk cheese as in the pasteurized article. There was no apparent difference in slit openness. Even when the curds at the time of going to press were distinctly brittle and shotty, openness did not necessarily result. Fat-particles were noticed frequently in the raw-milk cheeses, especially in cases where the test of milk was high. These did not appear in the pasteurized-milk cheese. This fits in with accepted scientific ideas on the effect of heat on the dispersion of fat in milk: the clusters of fat-globules are broken up by heating, especially when accompanied by agitation, and are more evenly distributed throughout the cheese. There are always to be observed, floating on the whey of raw-milk-cheese vats, large blobs of butterfat which are never common on the whey from pasteurized milk.

(2) Flavour: Even when using very pure milk produced under the best sanitary conditions it was found that the flavour of cheese made from milk pasteurized at temperatures not exceeding 160° F. was superior to cheese made from raw milk. This superiority became more evident as the cheese matured: the pasteurized-milk cheeses held their flavour very much better. This evidence is in accord with results obtained by research workers elsewhere. When high pasteurizing temperatures were employed, however, a distinct influence upon flavour was noted. It was apparent that these cheeses did not mature in the ordinary way, and at four months old they had a bitter taste. This was especially so with the cheese used from milk pasteurized by the holding method.

(3) Yields: Pasteurization increased the yield of cheese per pound of fat and pound of milk. The holding method of pasteurization had more noticeable effect in this direction than the flash.

(4) Maturity: No distinct influence upon maturity was observed in the grading so long as low temperature of pasteurization (160° F. or below by the flash method) was adopted. At high temperatures normal ripening was interfered with.

(5) Behaviour of cut surfaces on exposure: No reliable information on this was collected, because of difficulties in examining the cheese after sale. A few cheeses, however, made from both raw milk and pasteurized milk, examined at four months old, opened on exposure, while two lots held till twelve months old did not open appreciably even after four months' exposure under ordinary atmospheric conditions.

These results were not accepted as final, for several reasons: (*a*) No bad openness was experienced in any of the makes; (*b*) there was no evidence to show that results obtained with milk derived from the one herd were applicable to milk produced in other districts; (*c*) there had not been adequate facilities for close examination of the cut surfaces of the mature cheese after they had been exposed for some time; and (*d*) the number of cheeses made was not considered large enough to warrant the formulation of definite conclusions.

During the past dairying season slit openness with occasional mechanical openness occurred in cheese made from College milk. Milk obtained from factories in the Manawatu district was also made into cheese in the College factory, and evidence was collected as to how this cheese compared with cheese made from College milk. In the past season, also, an improvement in the method of examination of the experimental cheese was developed. Photographs have been taken of the cut surfaces of the cheese when four months old, immediately after cutting, and again a few days later, the cut surfaces being exposed to the air in the interval. This has yielded some additional information on the relation of the cheese make to drying out after cutting under conditions which simulate those obtaining in the grocer's shop. Permanent records have thus been made available which will facilitate the final evaluation of the results. In these circumstances it was decided to extend the last year's work on pasteurization. Cheese was made from portions of the same milk in the raw state and after flash pasteurization to 160° F. and 175° F., both whole milk and standardized milk being employed. This procedure was followed in the College factory with milk obtained from two sources—(*a*) Massey Agricultural College herd; (*b*) a supplier of very good milk to a factory producing open cheese. These cheeses were made during the months of March and April and when they have been finally examined the results will be incorporated with those of last year's experiments. In addition, arrangements were made to have the experiments repeated during the late autumn in the Waikato district in one of the New Zealand co-operative dairy factories under the direction of Mr. W. H. Udy.

Relation of the Milk-supply to Mechanical and Slit Openness.—(*a*) Chemical composition of the milk: No constantly recurring difference in the amounts of various constituents in the milk supplied in the Manawatu district was revealed in analyses carried out by Dr. F. H. McDowall, between factories affected with openness and those free from the trouble. It is interesting to note, however, that New Zealand milk shows a distinct difference from that of other countries in possessing a lower ratio of casein to albumen. It is quite conceivable, also, that differences may occur in the nature rather than in the amount of the constituents. Any attempt to define such a qualitative difference would mean