The content of carotene (yellow colour, vitamin A precursor) changes somewhat from time to time and varies over different districts. The difference in carotene content of butter from Friesian and Jersey cattle is not so great as might be expected.

(*c*) *Wrapping and Storage of Butter.*—A fairly critical chemical and physical examination has been carried out on the properties of butter wrapping materials, but none of the other wrappers supplied by vendors of wrapping materials has been found superior to metal foils backed with parchment.

The conditions which govern the development of surface defects, particularly "primrose" colour, have been studied, and attention has been drawn to the important part played by pre-freezing conditions, particularly the elimination of large fluctuations in temperature in the chill-room, on the quality of butter at the surface.

The possibility of developing an export trade in patted butter wrapped in "triple foil"—*i.e.*, aluminium foil sandwiched between two thin layers of parchment—has been suggested and recommendations have been given for overcoming certain possible difficulties which would be encountered in practice.

(*d*) *Butter-boxes.*—The previous indications that rimu would be a satisfactory timber for butter-boxes are being tested out by shipment under commercial conditions of several lots of butter. Arrangements have also been made with a box-testing station in England to have the mechanical strength of rimu boxes compared with that of similar white-pine boxes.

(*e*) *Neutralization of Cream for Buttermaking.*—It has been found that a considerable amount of the over-neutralization of cream has been due to the use in some factories of too high a colour as the phenolphthalein end-point in the titration of the acidity of cream. An attempt is being made to provide a standard colour for the end-point, so that the procedure in use shall be common to all factories.

(*f*) *Pasteurizing Methods for Cream.*—During the past year trials were made of machines which have been proposed as alternatives to the standard flash pasteurizer. The experiments were designed with a view to determining whether these machines improved the quality of the butter made from poor-quality cream and whether they had any deleterious influence on high-quality cream. A pasteurizing and deodorizing unit which has come into common use during recent years was found to improve the quality of the butter made from second-grade cream with no apparent attendant disadvantages. Treatment of high-quality cream by this method had no deleterious effect. On the contrary, the butter made from finest cream treated in the pasteurizing-deodorizing unit was often preferred to butter made from similar cream treated by the flash pasteurizer. In particular the deodorizing treatment did not appear to result in a "flat" flavour in the butter. Caution is needed in translating results such as these into general practice, since cream may not react in the same way in all districts. A full investigation of a deodorizing treatment is very necessary, since some treatment of this type may be required if, as appears likely, it proves impossible to bring about a complete elimination of feed flavours by methods of farm management.

A plate pasteurizer used for the treatment of cream did not appear to offer any advantages over the flash pasteurizer. With poor-quality cream it effected no improvement in flavour and had some disadvantages.

(*g*) *Fat Losses in Buttermilk.*—In the comparisons at the Institute of the treatment of cream in the tandem flash pasteurizer and in the vacreator a careful check has been kept on the fat losses in the buttermilk. Since, however, the vacreator in use at the Institute is much smaller than the standard size, it has been necessary to compare the fat losses at the Institute with those occurring in commercial factories. These results are now being studied, and will shortly be ready for publication.

It has been shown that the butyl alcohol Babcock method gives very satisfactory results for buttermilk-testing.

(*h*) *Feed Flavours.*—The occurrence of feed flavours in the cream from some farms and the greater incidence of such flavours in the cream from some districts led the Institute to take up a study of the whole subject of the origin of feed flavours. In this work the Institute has had the co-operation of the Plant Research Station, officers of the Dairy Division, and several commercial factories. The field investigations started last year by the Plant Research Station in collaboration with several commercial factories in the Waikato district were continued during the season. Coincidently, more strictly controlled trials were initiated at this Institute. Pastures consisting of pure strains of grasses and clovers and of specified mixtures of the various types were established by the Plant Research Station on an experimental area near Palmerston North. An indoor feeding-shed and milking-shed were also provided. Two groups of cows were selected. One group was grazed out of doors on the special pastures, while the other group was housed indoors throughout the season and fed on pure strains of grass or clover for various periods, the herbage being cut, weighed, and fed in a fresh state. The cows were milked by hand and the individual milks were separated, so that cream samples from each individual animal were available for examination. The evening samples were kept in a refrigerator, and the creams were examined daily for the presence of feed flavour, points being awarded according to an agreed scale.

The experiments were not commenced until late in October, yet, even in the short time available this season, positive results were obtained. Cows fed on pure rye-grass produced cream free from feed flavour. All of the five types of clover—viz., subterranean, suckling, Montgomery red, white, broad red—fed individually to the cows indoors caused the appearance of a marked feed flavour which, while never so strong as that found in the worst cases in the Waikato, was essentially of the same type. The taint occurred almost invariably in the creams from the evening milking. This confirms the generally accepted idea that time of consumption of any taint-producing plants by the animal in relation to time of milking has a bearing on the development of feed flavour. Cows eat very little during the night, hence the absence of flavours in the morning creams. The results were most clear-cut with