

DAIRY HUSBANDRY PROJECTS.

(n) *Pasture Plants and Dairy Products* (co-operative work of the Dairy Research Institute, and Grasslands Division, Plant Research Bureau).—In addition to determining the influence of white clover and perennial rye-grass on the flavour of milk, a careful study has been made of the effects of these feeds on the composition of the milk of cows fed thereon. The grasses and clovers used in this work were provided by the Grasslands Division of the Plant Research Bureau. A record has been kept of the amount of pasture consumed by milking-cows fed in stalls *ad lib.* quantities of these species four times per day and a corresponding record has been kept of both the milk produced and its composition. From analyses made of the feeds by the Chemist of the Grasslands Division of the Plant Research Bureau it will be possible to determine from the data collected the relationship of the feed consumed to the milk produced and, in turn, its effect on the composition of the milk. Similar records have been kept of the milk produced by two groups of cows grazed during the season on specially seeded areas of rye-grass and rye-grass and white clover. An enormous mass of analytical data collected daily over the past three milking-seasons has now been accumulated and it is intended to work this up during the winter months.

(o) *Relation of the Plane of Nutrition of Milking-cows to the Composition of their Milk* (W. Riddet, F. H. McDowall, I. Campbell, and G. A. Cox).—It has been recognized for long that the solids-not-fat, especially the casein fraction of milk is depressed when milking-cows are at pasture in long periods of drought. This problem presents difficulties to producers of city milk which needs to conform to a minimum standard of 8.5 per cent. solids-not-fat. It also presents difficulties to cheese companies who experience a falling off in cheese-yield per pound butterfat in dry periods. No satisfactory explanation for the phenomenon has been given. Based on the beliefs that it may be due to under-feeding milking-cows or to their dependance entirely on "dry" feed after receiving luscious pasture, an experiment was carried out to test the validity of these theories during the winter of 1937. Working with six animals, divided into three groups of two and fed on the thirty day experimental alternate feeding plan, it was found that the solids-not-fat of milk were perceptibly decreased by reducing the cow's feed to half her normal requirement. It was also observed that the iodine value of the fat was raised at the same time. The substitution of pasture for meals in part of the ration exerted no influence on the composition of the milk. A second experiment of the same nature was carried out during the period January till April, when cows more advanced in lactation were used. The results followed the same trend as those observed in the first trial, but the differences were less marked.

A modification of this experiment was carried out with two groups of cows grazing comparatively bare pasture during the period January till March. Grass ensilage in *ad lib* amounts was fed to the groups in alternate periods of twenty-one days. The results of this trial are now being worked up.

STANDARDS FOR DAIRY REQUISITES.

Members of the staff have acted on a sub-committee set up by the New Zealand Standards Institute to define standards for dairy requisites. This sub-committee is working in close co-operation with a corresponding committee of the British Standards Institution.

PASTEURIZATION AND BOTTLING OF MILK FOR SCHOOLS.

At the request of the Department of Health, which found it impossible to get any person or firm to contract to supply pasteurized and bottled milk to schools in the Palmerston North area, the Institute undertook the responsibility of pasteurizing and bottling milk supplied daily to school-children in the Palmerston North City area. The Department provided the necessary up-to-date plant, which was installed in the Massey Agricultural College dairy factory. It also entered into contracts with farmers to supply daily the requisite quantity of raw milk from milking-sheds registered under the Dairy Industry Act, 1908, and made arrangements for the distribution of milk to city schools. A local committee representative of city schools, Education Departments, City Council, Government Departments, and others interested was set up by the Department to control the local milk scheme. This Committee has closely co-operated with the Institute and has been of great assistance in making the scheme work smoothly since its inception. The Institute has been reimbursed from the Health Department's milk in schools vote for all costs attendant upon this work. Thus the Institute has virtually acted as agent for the Department of Health. The supply of milk to schools was commenced on 17th November, 1937, and has been carried on since that date without interruption, except during school holidays. Over four thousand bottles each of $\frac{1}{2}$ -pint capacity have been supplied daily to some ten schools. A high standard of milk-quality has been maintained throughout the whole period; no difficulties have been experienced, and all concerned have expressed satisfaction with the operation of the scheme.

STAFF CHANGES IN 1937-38.

Dr. T. R. Vernon, Ph.D. (London), joined the staff in the United Kingdom in July, 1937, as specialist officer in mycology. After making a survey in the United Kingdom of mycological problems bearing on New Zealand dairy products he took up duties at the Institute in December, 1937.

Dr. H. R. Whitehead proceeded to the United Kingdom and Europe in May, 1937, to attend during August the World's Dairy Congress at Berlin and to undertake special investigations overseas. He returned to duty in November.