

between farm and slaughter is the major factor affecting carcass losses and that transport by rail suffers in comparison with motor-lorry only in so far as this time interval is lengthened. In a hogget wintering experiment (in association with the Animal Research Division, Department of Agriculture) it was shown that differences in the plane of nutrition produced differential effects upon bone, muscle, and fat greater than indicated by live- or carcass-weight differences.

(b) *Breeding*.—Practical problems involved in progeny testing sheep have been studied, with particular reference to the carcass- and breed-type aspect (in association with Dr. McMahon). Results show considerable promise of practical application. An attempt is in progress to establish an inbred line of Romneys for experimental purposes. Vitamin C (ascorbic acid) therapy has been tried in respect to sterile rams showing poor motility and/or morphological abnormalities of sperm, with negative results. Hormone therapy (testosterone) in a suitable subject has given good results. It is hoped to breed from such "sterile" animals in an attempt to investigate the inheritance of sterility and to assess the potential dangers of therapeutic treatment of sterility to future generations. In association with Professor K. Wodzicki, of the University of Warsaw, a study of the thyroid glands of New Zealand sheep has been commenced and a preliminary survey completed. Considerable variation in the thyroids of lambs reared under the same conditions has been demonstrated.

#### Cattle.

(a) *Identical Twins*.—A preliminary attempt to locate identical twins in cattle to provide material for experimental study has been unsuccessful. Some twenty pairs of heifer calves were examined on a basis of nose print, hair whorls, supernumerary nipples, and coat colour.

(b) *Hormones*.—A preliminary investigation, in association with the Otago Medical School, of the possibility of manufacturing pituitrin for medical purposes has yielded very promising results. In both the oxytocic and vaso-pressin principles the powder prepared has given assay results comparable with normal commercial products.

### MASSEY AGRICULTURAL COLLEGE.

#### SHEEP-NUTRITION EXPERIMENT.

Professor G. S. PEREN.

*Wool Characters*.—As in the previous year, the ewes were shorn by treatment groups and the following fleece characters judged and allocated a value on a scale of 1-7: Handle, lustre, back, staple, crimp, type, colour, tip, fleece as a whole, soundness. In addition, count was estimated, staple length, at mid-side, measured to the nearest  $\frac{1}{2}$  in. Each fleece was weighed and sampled for yield at the mid-hip position.

Analysis of the year's results has not been completed, but it is indicated that there are no very striking differences between treatments. A determination of the hairiness of each fleece has been made by the fleece-testing department in samples taken in the usual manner just prior to shearing.

*Fat-lamb Data*.—This year each lamb was slaughtered when approximately 70 lb. live weight and when it was estimated that the carcass weight would be 34 lb. This proved to be an improvement on killing at a definite live weight, as was done last year, and resulted in less variation in carcass weight. The mean carcass weight was 34.57 lb.

*Foot-rot*.—There have been no cases of foot-rot in the last twelve months. This subsidiary trial has been most successful.

*General Health*.—As a result, presumably, of very careful shepherding and a regular diet, the mortality in the experimental animals has been well below normal, and general health as indicated by freedom from troubles and by "bloom," exceedingly good.

#### PIG RESEARCH.

Mr. M. M. COOPER.

*Inheritance of Length in the Tamworth Breed*.—This long-term project has been continued during the year 1941-42 and considerable progress has been made in the fixation of long and short strains by inbreeding. The progeny of the long-type boar, Burleigh Chief, from matings with long-type sows had an average carcass length, measured from the first rib to the aitch-bone, of 740.6 mm. The mean carcass length of progeny of the original short boar, Massey King Luna, when mated to short sows was 726.2 mm. This difference was highly significant, but there was no significant difference between the two sets of carcasses in respect of leg length and thickness of back fat.

A selection of sows was made in the progeny of Burleigh Chief from sows which had proved themselves to be breeders of long pigs, and these have been mated to a son of Burleigh Chief, Massey Chief Dick, whose dam consistently produced carcasses of greater than average length. The average length of baconers from these matings is 745.0 mm. This compares with a carcass length of 725.4 mm. for the second generation of the short strain, sired by a son of Massey King Luna, Massey Luna Henry.

*Winter Feeding of Pigs*.—Exploratory group trials in the winter feeding of sugar-beet to pigs have been conducted with a view to determining the usefulness of this crop as a source of bulk food to dovetail with seasonal dairy by-product supplies. Pigs averaging 70 lb. at the commencement of the experiment and housed in a Nielsen-type piggery made an average weekly gain of 7 lb. per head through July and August when fed on a ration consisting of 2 lb. of mixed meal (equal parts of cocconut and meat-meals) and sugar-beet to appetite. A comparable group fed 1 lb. mixed meal daily and as much sugar-beet as the pigs would consume made weekly gains of 6 lb. per head. In each instance the pigs were in prime condition and fit for slaughter at the end of the trial. Though no definite comparison can be made between the groups, the general conclusion can be drawn that limited feeding of meals combined with sugar-beet can be a very profitable undertaking. The rate of growth of the higher meal-fed group compares favourably with that of whey-fed pigs supplemented with 1 lb. meat-meal daily fattened during the spring and summer months.

*Comparison of Copra and Barley Meal as a Winter Supplement*.—A feeding trial with individually fed pairs of pigs, balanced for weight, sex, and breeding, was made to determine the comparative value of copra and barley meal as supplements for store pigs wintered on meat-meal and sugar-beet. All the pigs were fed the same ration of meat-meal and roots, quantities of the latter being increased