Analysis of Bloods from Cows on Various Planes of Nutrition.—Analysis of bloods from cows on various planes of nutrition has been continued monthly throughout the year and over the early lactation stages at weekly intervals. In addition the variation of these constituents around parturition was followed more closely by bleeding on the three days before calving, on the calving day, and on the three days after calving. This year's results are still being examined, but the main points of interest are: (1) The magnesium level of the low-low plane cows has not remained so consistently below that of cows in other planes as was indicated by the 1948 season's results. (2) Both calcium and phosphorus fall in almost all animals on the day of calving or the day after calving, values lower than 7 mg./100 ml. for calcium and lower than 3 mg./100 ml. for phosphorus being observed.

Measurement of Intake.—(*a*) *Usefulness of Chromium Faeces Output and Nitrogen Digestibility Techniques with Mixed Diets:* A digestibility trial involving 4 sets of identical twins was conducted with pasture, silage, and pasture-silage mixtures for the purpose of establishing any associative effects on digestibility which might be exhibited by this feed mixture. This investigation was essentially to determine whether the technique of measuring fæces output by chromium marker and digestibility by fæces nitrogen could be employed with cattle fed on grass supplemented with silage. The importance of this aspect is obvious when it is appreciated that for at least four to five months of the grazing year dairy cows in New Zealand under good management receive silage supplements. The experiments showed that no measurable associative digestibility effects resulting from widely different ratios of grass and silage existed, and, in addition, that the digestibility of a mixed diet can be determined satisfactorily from fæces nitrogen.

The experiment also indicated that satisfactory recoveries of chromium were obtained and accordingly that the marker technique can be extended to include measurements of the intake of mixed feeds of the grass-silage type.

The results with 7 sets of twins, all of which were fed measured quantities of food under indoor conditions, so that actual intakes of grass and silage were known, showed very good agreement between observed and calculated intakes.

(*b*) *Further Studies of Faeces Nitrogen as a Measure of Digestibility:* Regression equations for this purpose have been developed but are not yet considered completely satisfactory, since insufficient data from digestibility trials conducted with cows on pasture exist. The work is being continued. At the same time further studies of the possibility of using lignin instead of nitrogen as a digestibility index are still being pursued.

(*c*) *Effect of Bulking Grab Samples on Estimation of Intake:* It will be appreciated that the application of the present technique of measuring intake by an analysis of fæces obtained from "grab" samples at night and morning milkings involves a tremendous amount of analytical work if each sample is handled separately. To make the method applicable to any large number of animals some reduction is essential. This has been approached by developing methods of bulking "grab" samples from the same cow over a period of a fortnight to provide a measure of intake on this basis. The method developed has been shown to give very satisfactory results.

(*d*) *Preparation of Marker:* The twice daily dosing of cows with measured quantities of chromium presents a very difficult practical problem in the application of this technique. Various attempts have been made to mechanize the preparation of chromium tablets, but these have been only partially successful and the present method of weighing out the requisite quantity into cardboard capsules still has to be used.

(*e*) *Extension of Intake Work to Sheep:* A preliminary investigation has been carried out with 5 sheep over a six-week period, using monastral blue marker for estimating fæces output. Results indicate that "grab" samples comparable with those used in cattle are not representative of the total fæces output of the sheep and, in consequence,