*Histomonas Infection of Export Eggs.*—Experimental trials are under way to attempt to produce Histomonas infection similar to that found present in London in eggs shipped from New Zealand.

*Tuberculosis.*—Evidence has been obtained and confirmed that pigs are becoming infected with *tubercle bacilli* of avian origin where fowls and pigs are run together. This is the first definite case of avian tuberculosis recorded in the country.

*Salt Poisoning.*—Salt poisoning has been frequently suspected in the past in sudden mortalities amongst fowls, and feeding trials with salt in increasing percentages were carried out by Mr. Josland to find what amounts the fowl could stand. His report will give details.

### General.

No experimental work has been performed on dogs, horses, cats, or goats.

Arrangements were made, however, for a shipment of serum virus from Messrs. Burroughs Wellcome and Company for use in Napier to protect fifty dogs against distemper. The result of the trial has so far been good. One dog died—it is assumed from distemper—six dogs showed a rise of temperature following vaccination, but the remainder remained normal. Several months following the inoculation the dogs were reported well. No controls have been kept under identical conditions, the test being entirely a field trial, but many dogs unvaccinated live on the same and adjacent sheep-runs. Distemper is common in the district.

### Publications.

(By Laboratory officers or resulting from Laboratory work.)

"Tuberculosis in Farm Animals"—T. A. Blake, M.R.C.V.S. *N.Z. Journal of Agriculture, 52,* 226–231.
"Dosing of Sheep for Control of Parasites"—C. S. M. Hopkirk, D.V.Sc. *N.Z. Journal of Agriculture, 52,* 254.
"Vaccination of Ewes against Pulpy Kidney (Infectious Entero-Toxæmia)"—C. V. Dayus. *N.Z. Journal of Agriculture, 52,* 289–292.
"Deficiencies known or suspected in Live-stock Nutrition in New Zealand"—C. S. M. Hopkirk. *N.Z. Journal of Agriculture, 53,* 200–4.
"Paspalum Staggers"—C. S. M. Hopkirk. *N.Z. Journal of Agriculture, 53,* 105–108.
"Johne's Disease"—E. H. Stephens and D. A. Gill. *N.Z. Journal of Agriculture, 54,* 1–7.
"Vaccination of Ewes against Pulpy Kidney"—C. V. Dayus. *N.Z. Journal of Agriculture, 54,* 65–70.
"Dipping Mortality associated with Vibrion Septique Infection"—C. V. Dayus. *N.Z. Journal of Agriculture, 54,* 170–1.
"Treatment of Bush Sickness with Cobalt in the Arohena District"—C. S. M. Hopkirk. *N.Z. Journal of Agriculture.* (In press.)

## NUTRITIONAL RESEARCH WORK.

Dr. I. J. Cunningham, Research Officer in Animal Nutrition, supplies the following sub-report:—

For the greater part of last year the writer was absent on leave and the activities of the section were under the direction of Dr. Marion M. Cunningham. Work has been continued on the relation between dietary protein and sterility, on magnesium metabolism, on vitamins A and D, and in other directions.

### Dietary Protein and Male Sterility.

In last year's report reference was made to the production of sterility in male rats by feeding proteins of poor biological value. This effect is produced by a diet containing 70 per cent. of maize, the remaining 30 per cent. being made up of minerals, vitamins, &c., necessary to complete the ration for the purposes of growth. When wheat completely replaces maize in this ration all the rats are fertile. The hypothesis was formed that the different effect of these two rations was due to the different biological value of the contained proteins.

Further trials during the last year have been made with cereals other than maize or wheat. It has been found that when rye or barley is substituted for maize the rats fed these modified rations are fertile, whereas when oats is used as a substitute sterile rats are produced. From these results it appears, therefore, that wheat, barley, and rye are favourable foods for the male reproductive system, while maize and oats are unfavourable.

The question whether the differences between these cereals in respect to their capacity to provide nutriment for the testes is due to differences in the quality of the contained protein has also been investigated. Such investigation is possible since the degenerated state of the testes is the only apparent abnormality of male rats fed the maize and oats diets. The plan followed in the experimental work is to feed the maize diet modified by the addition of protein-rich supplements and to determine the influence of these supplements in preventing the testis degeneration which invariably results from use of the unmodified maize ration. Such a plan permits the effect of the supplement to be related directly to the development of the testes.

Supplements employed so far are dried bull testes, dried ripe unstripped salmon testes, dried yeast, and marmite. With dried bull testes alone or with salmon testes plus dried yeast or marmite as supplements to the maize ration testis degeneration was entirely prevented. The conclusion has consequently been reached that the quality of the protein is of prime importance for the nutrition of the testes. A detailed account of this work is being published in the *New Zealand Journal of Science and Technology.*

The work is being continued and expanded as rapidly as facilities of staff and accommodation permit. It is hoped to keep its application to domestic animals at the same stage by parallel experiments on large animals and by chemical investigation of the proteins of foodstuffs and other materials.

### Magnesium Metabolism.

*Grass Staggers.*—Pasture samples from areas set aside in the Waikato district have been analysed regularly in order to collect further information and confirmation of previous results concerning the seasonal variation in the magnesium content of such pastures. The results are similar to those dealt with in the previous report.

More extensive trials with dolomite as a preventive treatment against grass staggers were instituted last season, and Mr. Marshall reports a very considerable measure of success. In spite of these hopeful results, however, it would seem desirable to continue the free distribution for at least another year before recommending its general use in the Waikato district. The additional experience will enable field officers to give a more authoritative statement regarding its value.