

2 grammes per day. After four months at this dosage one sheep lambed normally and the second was found to be empty, and turned out. No ill effects were noted in these two sheep. This experiment was conducted to see whether ergot produced—

- (a) Deformed lambs as seen frequently on fescue in Otago.
- (b) Nervous symptoms seen in dry seasons on bare paddocks in certain North Island centres. The sheep were fed on hay only, to try as nearly as possible to simulate the conditions seen where rye-grass staggers occurs.

ARTHRITIS IN LAMBS.

In view of the close relationship of the organism causing arthritis in sheep in New Zealand with that of swine erysipelas, an attempt was made with work on mice and pigs to find whether the strains were identical or whether the arthritis strain might prove dangerous to pigs.

The effect on mice of the two strains was found to be identical, and typical of swine erysipelas. Pigs inoculated, subcutaneously with cultures of organisms of arthritis and swine erysipelas which had had virulence raised by mice passage, did not react in any way, and were found to be quite free at *post-mortem* examination from lesions of any description.

DEFORMITY IN LAMBS.

A condition described last year in which the lower jaw of the foetus is missing. Two ewes thyroidectomized, one before tupping, and one after tupping, both lambed normal lambs. One of the ewes had a difficult parturition, and the lamb died after birth. Thyroids sent in for analysis showed no abnormality as regards iodine content.

As a result of a popular belief that deformity is the result of inbreeding or from the use of certain strains of rams, a belief which could readily be shown wrong by attention to histories of outbreaks, twenty ewes and one ram of known breeding were forwarded to a property where deformity occurs and placed on a paddock of Chewings fescue. Owing to shortage of feed and a cold season, the fescue was, this season, kept particularly short, whereas, when deformity occurs, it is long and dry. All ewes lambed, but one lamb was born prematurely, eight lambs died from exposure, and one ewe had twin lambs. None showed deformity. This breeding experiment is to be repeated next breeding-season on a longer and more representative type of pasture.

COCCIDIOSIS.

A case of coccidiosis was found in a lamb at a Hawke's Bay freezing-works and identified at Wallaceville. This is the first case reported in New Zealand, and occurred in a small line of lambs, but without producing harmful symptoms. The lesions appeared as small pedunculated tumours attached to the mucosa of the intestine.

DEFICIENCY CONDITIONS IN SHEEP.

(a) *Morton Mains*.—Blood specimens from this area have shown that there is a deficiency of calcium, phosphate, and magnesium in the blood. The shortage of phosphate and magnesium may very well be the result of the anæmic condition of the animals, but the lowered calcium is rather suggestive of a deficient intake of that mineral, more especially as bones from their brittle and thin appearance are also deficient. Analyses of bones is at present under way.

(b) *Te Pohui*.—Investigation showed nothing in the way of lime and phosphate deficiency, but tended to point to iron deficiency.

ANTE-PARTUM PARALYSIS.

It was decided, because of the installation of the Biochemical Section, to carry out, if opportunity permitted, a considerable amount of blood and urine chemistry on this disease of the pregnant ewe. The results obtained through the season's work are conflicting, and now more work is required to clear up the position.

The use of glucose was repeated, but again found ineffective. Theoretically glucose should prove useful; actually it does not do so in many cases. The best method of control in the past season was transfer of the flock to a more luscious pasture, young grass, green oats, &c. Histories verified the fact that it was the fat animal placed on short rations which was the sufferer, and not the ewe which was kept up in condition or which had gradually improved from tupping. Several of the cases of supposed ante-partum paralysis were found on analysis to be actually calcium-deficient animals suffering from milk-fever, and these cases responded to Ca treatment intravenously. Formalin and CaCl_2 used intravenously, glucose, and saline were all failures.

A point of interest in the blood-analysis was the almost consistent high cholesterol content. This, together with one theory held regarding pulpy kidney, caused a considerable amount of experimental work with cholesterol, intravenously and by mouth. It was found that yarding of ewes for twenty-four hours resulted in an appreciable drop in the cholesterol content of the blood. Cholesterol given intravenously dissolved in chloroform is deposited in the lungs and kills the experimental animal very quickly with very small doses. Fed to animals it does not appear to increase the quantity in the blood, but may cause hæmorrhage through the mucosa of the abomasum. More work is contemplated on this condition, and it is hoped to publish full results after the coming season's work on the whole subject.

POULTRY-DISEASES.

No very great amount of poultry-work has been possible in the Laboratory, more having been carried out at the Poultry Station itself. However, two interesting conditions have been investigated: coccidiosis in pullets, and bleeding in pullets and hens.

Coccidiosis in chickens of ten days to eight weeks old is of fairly common occurrence, but coccidiosis in pullets of four to eight months is comparatively new. For the past two years, however, a number of flocks have shown this condition in their young birds, and, what is of importance, have been selling affected pullets round the country, so that poultry-farmers must be prepared for a great deal more of this parasitic condition. The new milk-iodine treatment was applied in one field outbreak, but apparently has not been entirely successful according to reports. What is required is that some power be given Poultry Inspectors to stop the sale of affected birds until such time as the parent flocks have been cleaned up. This presents considerable difficulties.

Bleeding was mentioned last year as hæmangioma. A number of flocks in the South Island have been found to get several birds a year affected. It has not been possible to trace the strains of affected birds, although an effort has been made to do so; but it is strongly suspected that there is an hereditary tendency in the form of bleeding described. A young pullet or older hen may be noticed to be bleeding from a scale in the