(*e*) A sheep killed some months after rupture of an abscess was found to be quite clean, though the gland had been broken up into shot-like pieces. Another ewe was incised and pus evacuated readily, leaving a clean gland which healed well. Arrangements were therefore put in hand for field officers to try out incision of glands in a number of sheep on the affected farms, in sheep being prepared for meat-works, in order to see the results of incision.

(*f*) Curative trials were made on four affected sheep, two with potassium iodide ½ gr. per day and two with mercuric iodide 5 gr. per day. One of the former two was killed accidentally during drenching. Both ewes receiving mercury developed badly ulcerated lips, but abscesses were unchanged in all cases.

(*g*) Some toxicity work on guinea-pigs and sheep was tried, but toxin-production from strains used was not of a high order. A single experiment to find whether the New Zealand strain would induce icterus in sheep was tried on a hogget. A culture of organisms was given intravenously. Arthritis developed, and later the pus was taken from the joint and reinoculated intravenously. The sheep was killed a week later but showed no signs of jaundice nor were tests of blood indicative of hæmolysis. The differential polymorphonuclear count was raised to 84 per cent. and abscesses were found in the kidney.

(*h*) Many abscesses from lambs have been examined from both the Waingawa and the Gear Co. meat-works during the lamb-slaughtering season. Green-pus abscesses are commonly found in the region of the scrotum, but not actually affecting the inguinal gland. Such abscesses are invariably due to mixed organisms of a pyogenic nature or to B. pyogenes alone, not to the Preisz Nocard bacillus. A few cases where the inguinal gland has been invaded have been true cases of Preisz Nocard infection while the prescapular and precrural glands very frequently are infected with the Preisz Nocard bacillus, but they are exceedingly few in number per cent. The majority of the scrotal infections are due to faulty castration.

(*i*) A definitely abortive attempt was made during the year to test sheep affected and unaffected for caseous lymphadenitis by (1) a precipitin test; (2) intradermal testing with an antigen; (3) rapid agglutination test with an antigen made as smooth as possible.

Pulpy Kidney Investigation.

This was continued at Ranfurly in the spring. The season's work ruled out the theory that cholesterol in the blood-stream might be responsible for the trouble, and from this point of view considerable information was gained as to the normal cholesterol values of the blood of ewes and lambs.

The main work centred round an effort to establish the presence or absence of abnormal toxins in the small gut of affected lambs. It was greatly hampered by the small number of suitable cases for working on that occurred this year. Nevertheless what was accomplished pointed strongly to the presence of such toxins in the gut, and their inoculation into healthy lambs produced a condition that was indistinguishable from the naturally occurring disease. It is felt that this has given a more definite clue than we have previously had, though there is still a very long way to go. Further biochemical and histological examinations confirmed the previous findings.

Valuable epidemiological evidence was forthcoming from the fact that following the extremely bad winter and spring feed conditions the losses were very much less on most farms, the exceptions being almost confined to those on which the owner had been in a position to do his ewes as well as in other years. This confirms the view, previously expressed, that the condition of the lamb is a powerful predisposing factor.

A further large series of ewe-milk analyses were arranged for, and these showed that yarding for twenty-four hours, which is the only method which so far has been shown to check the losses, reduces the ewes milk-yield temporarily by about 50 per cent. Very few samples from ewes whose lambs died were obtainable, but such as were analysed showed that such ewes tend to give a greater amount of milk than the control normals and of slightly richer quality.

Circling-disease of Sheep.

A disease which occurs in many parts of New Zealand in the late summer and autumn was investigated, and found to be due to an encephalitis. The disease had previously been attributed by the farmers to either nasal-bot larvæ or else the cysts of Cœnurus cerebralis, but the investigation made it clear that neither of these is responsible. It appears to be a bacterial disease which results in the formation of microscopic purulent foci in parts of the brain. An attempt to transmit the disease to a healthy sheep by inoculating into its spinal canal an organism obtained from the cerebro-spinal fluid of an affected sheep was apparently successful. Further work that had been planned for this autumn has not been carried out as yet, as there seems to be much less of the disease reported this season. The work will, however, be continued as opportunity occurs, and will be aimed at establishing definitely the bacterial origin of the disease and the path of infection, with a view to formulating sound preventive measures.

Epizootic Jaundice.

Jaundice has been noticed in sheep on two farms widely separated, deaths occurring in January and March. Considerable section work undertaken on organs from killed sheep, and biochemical analysis of blood from affected sheep has shown the condition to be one known in South Africa, Australia, and America. A survey of the paddocks and swamps of the two farms rules out several weeds such as ragwort and subsequent sodium-chlorate poisoning, bracken-fern poisoning, and poisoning with *Praetia angulata*, and also disease conditions such as caseous lymphadenitis. There is still the suspicion of two things—one a weed producing photosensitization, and the other a badly balanced diet, from the fact that the land grows excessive clover in each case. Feeding experiments are under way to determine whether plant poisoning with several varieties of plants can be implicated. *Praetia angulata* has already been fed to sheep and rabbits with negative results, except in the case of a sheep, which showed gastritis.

Biochemical analysis of blood gives a picture of fairly high calcium, low phosphate, leucocytosis, hæmolysis, suggestive of a hæmolytic bacterial invasion. Histology reveals in the liver the large phagocytic cells spoken of by De Koch.

Ergot-feeding to Sheep.

Ergot was obtained as screenings from the season's grass seed, mainly rye, the amount of ergot averaging 5 grammes per ounce of seed. Four sheep were tried, but refused to eat screenings in oats, chaff, with treacle, &c. Finally each was drenched with 2 oz. of screenings = 10 grammes *Ergot sclerotia*. This seed was later ground so as to run out of a bottle more easily. After five days one sheep showing severe gastritis, having had 40 grammes ergot, died next day, showing ulceration of the abomasum. A second sheep commenced salivating on the sixth day after receiving 60 grammes ergot. This sheep was turned out, but died ten days later with ulceration of the tip of the tongue and enteritis. The remaining two sheep were reduced on the ninth day to 5 grammes of ergot and after a month to 4 grammes daily. A fortnight later they were further reduced to