

switched over to calcium phosphate and wood-ashes, and within a week decided improvement was noted. Here again vitamin A was found to be of no use in curing the disease, but the cod-liver oil was probably useful in aiding mineral metabolism. Evidence pointed strongly to the condition being a mineral deficiency, and preventive work will be tried on these lines.

Tuberculosis.

B.C.G. vaccine has been used on guinea-pigs, rabbits, and calves, but no thorough trial of immunity conferred has been made to date. One rabbit died of generalized T.B. when inoculated with virulent culture four months following vaccination. One vaccinated heifer given 4 milligrams bovine virulent culture intravenously began wasting, but later improved to some extent. Killed three months later, when only glands surrounding intravenous inoculation on right side, where some leakage had occurred, were affected. This animal would possibly have overcome the disease. No control was inoculated at the time. Further inoculation of animals has been awaiting the growth of suitable bovine cultures. Intradermal tests on vaccinated animals show a marked reaction. Calmette's eye test is in some cases not marked.

Brazy-like Disease in Sheep.

During the year very great progress was made in connection with the above disease in sheep. The causative organism was found and identified as *B. oedematiens*, and a tentative reason given for the appearance of the lesions in the liver. Larval fluke appear to be the agent for transmission of the organism from the intestines to the liver; but it has as yet been impossible to prove this point experimentally, one reason being the difficulty experienced in getting cercariae, another the extreme difficulty of passing fluke through snails in the Laboratory. An attempt is in progress to overcome these difficulties. A report on this subject appeared in the *Journal*, together with an article on the life-history of fluke, through the native snail *Potamopyrgus antipodum* var. *zelandiae*. Following this work, important educational instruction has been possible, and farmers in affected localities are commencing to clean up their farms with a view to eradicating fluke.

Lymphadenitis.

Experimental work on a small scale was commenced on this disease. Two sheep, guinea-pigs, and rabbits were fed with cultures for four days, but nothing developed, except in one guinea-pig, where the udder became affected. This possibly arose from the fact that one of the young animals was fed with the culture and infected the udder of the mother. Intravenous injection of the organism into a sheep led to arthritis in a hock and fetlock-joint, and to lesions in the kidney and seat of inoculation, from which the organism was recovered.

Arthritis in Lambs.

In continuation of the arthritis work commenced last year the following experimental work was undertaken:—

(1) Two strains of diptheroids were used—(a) *B. pyogenes ovis* from an aborting ewe; (b) A Fairton strain of typical arthritis organisms. Each was placed in three pregnant ewes subcutaneously or intravenously. With (a) two ewes lambed normally, while a third ewe died with an abscess in the cervical vertebrae due to some leakage from the jugular vein at inoculation. With (b) one sheep did well and lambed normally, lamb later sent to butcher fat. A second sheep had dead lamb, posterior presentation. Third sheep with twins, one lamb had been scouring in utero, and later did not develop well. At post-mortem examination nothing abnormal could be found. Second lamb did well and was fattened. This experiment suggested that the enlarged joints were not passed on to the lamb in utero.

(2) Cultural characteristics of the typical strain were worked out. Shortly, it was non-liquifying in serum or gelatine. Branching in gelatine similar to *B. erysipelas suis*. Growth on ordinary solid media difficult. In broth some clouding takes place. Sugars not dependable, but glucose, lactose, and galactose usually fermented. Saccharose and maltose not fermented.

(3) Two ewes doused into vagina with culture just before lambing. Lambs grew well and sent to butcher.

(4) Ewe with twin lambs: Both lambs at four hours after birth given inoculation of broth culture into navel. Lambs did badly, became lame, and developed severe arthritis in all leg-joints except hip-joints. Post-mortem at three and a half months showed extensive arthritis. Cultural methods recovered the original organism, but not in pure culture, other diptheroids having gained entrance.

These experiments suggest that the infection does not come from the ewe, but through the navel from the ground upon which the lambs fall. One other point brought out in this experiment to some extent, and noted in numerous lambs received during the season for arthritis, was the tendency of all diptheroids to attack joints. The temporary lameness seen sometimes before and usually after docking of lambs appeared to come from a diptheroid infection, chiefly of the hip-joint, the diptheroids in these cases being non-specific. Permanent arthritis might follow on from the specific organism, but seemed to be more prevalent on certain farms and not to be ubiquitous in sheep-country.

So-called Rye-grass Staggers in Horses.

Three varieties of rye-grass seed were fed to a horse, but nothing abnormal was noted. The condition has been so prevalent in the field this autumn in sheep, cattle, and horses that experimental work is under way to test out young rye-grass and ergot at certain stages of growth.

WOOL.

The good conditions which were experienced during the autumn of 1927 enabled the sheep to enter upon the winter months in good health, with the result that they came through the winter well.

The shearing season was somewhat delayed in parts by wet weather, and to a slight extent the wool was affected, but on the whole it opened up in a good clean and bright condition. At the commencement of the wool-sales it was apparent that competition was going to be keen with a full bench of buyers, and as the sales progressed bidding became more and more animated, with the result that the average price realized for the Dominion clip reached the high figure of 16-89d. per pound, an increase of 4-61d. on the previous year's average.

The following summary is extracted from the annual report of the Wool Instructor, Mr. J. G. Cook:—

The sum of £13,004,199 was received by wool-growers from the wool sold at the Dominion wool-sales extending from 14th November, 1927, to April, 1928 (this latter sale was held at Timaru). During this period 515,351 bales were sold, and averaged £24 5s. per bale, or 16-89d. per pound, showing an increase over the previous year of £6 1s. 11d. per bale and 4½d. per pound. The highest-priced sale was started on 31st January, 1928, at Dunedin, when 27,218 bales were sold, averaging £27 8s. 5d. per bale, or 19-87d. per pound. A Merino clip was sold at this sale, of which the top-price fleece wool brought 28½d. per pound and the locks 15½d. per pound, with various prices in between these two lots for the balance of the clip. A satisfactory feature of the wool-sales this past selling season was the tendency of the sheep-farmers to meet the market, and not put high reserve prices on their wool, a fault of previous years. The carry-over this season is one of the smallest yet known, being slightly over 5,000 bales. There