

STERILITY.

As regards sterility we are very little further advanced. The Laboratory herd was carefully watched. Among the heifers four held to first service and three to second service. Because of calving injuries these heifers were held back longer than usual, making two of them December calvers. The older cows were slightly worse at holding than the heifers, but not as bad as in previous years.

Cervical flora in several of the cases investigated gave almost a pure growth of a hæmolytic streptococcus. This organism passed on to a maiden heifer, and a heifer served once, did not cause excessive inflammation. There was, however, a flushing of the cervix. In the case of one of the Laboratory cows (Bunt) an inflamed cervix gave an almost pure culture of hæmolytic streptococcus similar to others from outside herds.

A second suspicious organism isolated was a thin non-sporulating bacillus growing often in long filaments and occasionally almost in spirochaete formation. This organism has been found on several occasions, and when placed on the vagina and cervix of an experimental cow the original mucus caused a catarrhal vaginitis and some cervicitis. The œstral periods of this cow, however, were not altered. It seems, therefore, as though the filamentous organism might be responsible for acute catarrhal vaginitis. This same organism has been found in semen from bulls of the affected herd.

Specimens from cull-cow drives between March and June gave us no evidence of endometritis being a general lesion.

TUMOURS.

Fewer tumours were received this year compared with last—131–145. 104 of these consisted of growths known as epithelioma of the orbit, vulva, and brands, the remaining 27 comprising eleven different varieties.

GENERAL SPECIMENS.

Cattle.—A total of 142 specimens were received of bovine tissues. Of these, actinomycosis of head and udder gave a total of 13; ragwort-livers, 8; sterility specimens, 54. Three urine samples were received from cows which showed symptoms of eclampsia following calving. They were affected with albuminuria and glycosuria, while kidneys were found acutely affected with parenchymatous nephritis.

Sheep.—Specimens amounted to 258, many of these comprising cases of arthritis, pulpy kidney, and livers of sheep affected with *B. œdematiens*. All diseases under investigation.

Pigs.—Specimens numbered 41; 7 of these were from cases of pasteurellosis.

Other Stock.—Of the remaining specimens, 57 were received from poultry, 12 from horses, 6 from dogs, 2 from goats.

PARASITES.

A careful record has again been kept of parasites from domestic animals in order to be able to form an opinion of those present in New Zealand animals. All were classified and a record kept.

WORK CARRIED OUT FOR OTHER DIVISIONS, ETC.

Horticulture.—Forty-six samples of honey for biological test for poisonous properties. None reacted.

Dairy.—This included fairly extended work on "peanut" flavour in butter, but repeated recently with tests on sterile butter containing cultures, no organism has been found to give the flavour noted in the material under examination.

Stores Control Board.—Rideal Walker coefficient of disinfectants. Total, 3.

Blackleg vaccine has been issued where required, a total of 18,800 doses having been requisitioned.

Aggrassin.—In March a serious attempt to make aggrassin was undertaken with cultures obtained from the Pasteur Institute. Results are not yet completed. The South African technique is being used.

TUBERCULIN TESTING.

A total of 1,967 c.c. of crude bovine tuberculin made at Pasteur Institute was requisitioned from the Laboratory. This was enough to test 6,560 cattle. 100 c.c. avian tuberculin was also obtained, and a number of fowls have been tested intradermally in the wattle. A small supply of tuberculin was also made at the Laboratory, and gave definite reactions in a tubercular cow.

EXPERIMENTAL WORK.

Whenever time has allowed, experimental work on one or another phase of various diseases has been attempted, and the following list will place most of that work on record.

Investigations into Mortality amongst Lambs.

Mr. Gill again spent several weeks in the Central Otago district this year, and in addition to continuing the investigations regarding the pathology of the condition, he carried out some controlled experiments to test the efficacy of the various preventive measures commonly advocated. A report of all work done was submitted, and an article embodying the results of the preventive experiments was published in the Department's *Journal*.

Oxalate Poisoning.

A thorough trial of feeding sheep and rabbits with sorrel was made. To compare lesions animals also received potassium oxalate and oxalic acid. This work had a bearing on the Pulpy Kidney question being investigated by Mr. Gill, and the results showed definitely that sorrel was in no way a cause of the pulpy kidney condition in lambs. A report appeared in the *Journal*.

Tæniasis of Dogs.

It is usually recognized that *T. echinococcus* is rather difficult to remove from dogs, and a trial was made on two pups removed from their mother before they had received hard food. Both pups were fed on livers containing cysts of cysticercus tenuicollis and echinococcus polymorphus. A month after the final feed adult tænia segments were found in the fæces of the dogs. One pup was given Kamala in tabloids, and then in powder form, followed by castor-oil, but no beneficial results were obtained. Liquid extract of Filix Mas was then tried, and the dog killed some hours later. A few dead *T. echinococcus* were found. The second pup was given a dose of $\frac{1}{4}$ grain arecoline hydrobromide in water per mouth. One hour later a very large number of live *T. echinococcus* were voided, together with two other tapeworms—*T. hydatigena*. The following day a further dose of arecoline was given, but no tænia were voided. No tænia were again seen in this dog which was killed a few days later. Post-mortem examination showed the intestines to be quite free from parasites. Experimental work pointed, therefore, to the possibilities of Filix Mas in a dose of 1½ drams in treacle, with a dose of $\frac{1}{2}$ – $\frac{3}{4}$ gr. arecoline hydrobromide some hours later, being an efficient tæniacure.

Paraplegia in Pigs.

A commencement was made at the end of the year on feeding pigs with minerals and vitamin B, in the form of yeast, to overcome paraplegia, so common in pigs fed with skim-milk and sharps, &c. Decided improvement followed feeding with the mineral (calcium phosphate) and wood-ash, plus cod-liver oil. Feeding with yeast in skimmed milk and pollard only has made the condition worse. Therefore vitamin was ruled out as a cause. This pig was then