

ROUTINE WORK.

Milk-samples for Examination for Contagious Mammitis.—2,097 separate milk-samples were examined microscopically and in many cases culturally. This total showed an increase of 484 over the previous year. 1,178, or 56.2 per cent. were found to contain the organism of contagious mammitis. From field reports there has been a better season as regards mammitis owing to the dry summer and reduced milk-output. It is satisfactory to note that the majority of farmers who send in samples are ready to keep on sending them so long as they have trouble in their herds or whenever mammitis reappears. Reference to experimental and cultural work on contagious mammitis is made later in this report.

Composite Milk-samples for Biological Examination for Tuberculosis.—190 samples in all were received, a decrease of 90 over the previous year, due to the lack of guinea-pigs, which were unprocurable. No cases were positive.

Blood-samples examined for Contagious Abortion.—During the year 740 were received, an increase of 411 samples over the previous year. In the majority of cases these samples were forwarded by the officers of this Division, only a few having been sent in by the stock-owners. 397 samples, or 53.6 per cent., gave a positive reaction, the remainder being negative. Out of the total, 94 samples were from bulls, 9 of these, or 10 per cent, gave a positive reaction.

Tumours from Stock.—Specimens from 126 tumours were received, which on microscopical examination proved in the majority of cases to be epitheliomata. This served to confirm the diagnoses made by the Inspectors in the field previous to the animals being slaughtered. The principal sites from which the tumours were taken were the eye, vulva, and brand area. All breeds of cattle contributed to the number.

Disinfectants.—Seven solutions were given a bacteriological examination for bactericidal properties on account of the Stores Control Board. It was found that disinfectant solutions had a much greater action on bacteria than did sheep-dips, which are in very general use for purposes of disinfecting.

Specimens from Stock.—A number of other specimens from stock have been received, largely as a result of *post mortem* examination by field officers. Many of these are of interest, and are useful as a means of keeping in touch with disease in the country. Such specimens give rise very often to interesting laboratory-work, and results of examinations are of educational value to the senders of the specimens. Figures are approximately as follows: Cattle, 145 (89 of these from cases of sterility or abortion); sheep, 33; pigs, 20; horses, 3; dogs, 7; poultry, 17.

Parasites demonstrated in Stock.—As a list of parasites—both endo and ecto—has not been compiled for New Zealand domestic animals, the following identified during the year will help towards a later compilation:—

Sheep.— <i>Fannia canicularis</i> larvæ	Matted wool round anus.
<i>Oestrus ovis</i> larvæ	Nasal cavity.
<i>Haematopinus pedalis</i>	Legs.
<i>Paramphistimum</i> larvæ	Stomach and intestines.
<i>Cysticercus ovis</i>	Diaphragm.
<i>Echinococcus polymorphus</i>	Liver (cysts).
<i>Oesophagostomum columbianum</i> larvæ and adult	Intestines.
<i>Chabertia ovina</i>	"
<i>Nematodirus filicollis</i>	"
<i>Trichostrongylus retortaeformis</i>	"
<i>Bunostomum trigonocephalum</i>	"
<i>Ostertagia circumcincta</i>	Stomach.
<i>Haemonochus contortus</i>	"
<i>Dictyocaulus filaria</i>	Lung.
Cattle.— <i>Oesophagostomum radiatum</i> larvæ	Intestines.
<i>Haemaphysalis bispinosa</i>	Udder.
Pigs.— <i>Demodex folliculorum</i>	Skin.
<i>Cysticercus tenuicollis</i>	Peritoneum, liver massive infection.
Poultry.— <i>Laminosioptes cysticola</i>	Fowl.

Dairy Division.—Work has been done, where possible, for the Dairy Division pending completion of their factory and laboratory. Eleven samples of water have been given bacteriological examination, while eight other samples of cheese, butter, and starters have also been examined.

Specimens of Interest (many resulting in Experimental Work).—Reports of the following have all been supplied at the end of examination of procurable specimens:—

Sheep: Mortality in sheep at Pukeratahi. Mastitis in ewes due to micrococcus of *revolta*. Foot lesions in two-tooth rams. Ophthalmia in sheep. Mortality in sheep, Tuturau.

Cattle: Calf diphtheria. Examination of liver and kidney in icteric carcasses. This condition, from the history of cases and specimens received, appearing to be due to ragwort poisoning in both cattle and sheep. Septic metritis, so-called, in cattle.

Pigs: Several cases of pasteurellosis have come in from the Manawatu district for confirmation.

Poultry: An outbreak of suspicious fowl-cholera not quite typical but of sufficient virulence to kill a number of fowls on the poultry-farm at Lower Hutt was investigated in December, 1925. Specimens of ducklings which had died as the result of toxæmia from bacilli of the dysentery group were investigated.

RESEARCH WORK.

Tuberculosis.—Two curative methods have been tried: (1.) Injection of sodium morrhuate; 0.3 per cent. solution in doses of 8 cc. to 10 cc. Sodium-morrhuate treatment was attempted on account of good results said to have been obtained in human therapy. One cow was given injections, but although the treatment seemed to be palliative, when such treatment was stopped the cow again became emaciated. It was felt that injections of this material might be useful to prevent further invasion of the disease in cows of value or pedigreed bulls. No fibrous capsules were formed round existing lesions, and active tubercular lesions were obtained from a guinea-pig inoculated with tubercular pus from the cow. (2.) Injection of increasing doses of tuberculin-adrenalin aa. This treatment was given on account of the reported good results in cattle, the theory being that the tuberculin was held locally by adrenalin and acted as a tubercular focus in causing production of immune bodies. Adrenalin also is deficient in animals suffering from chronic diseases. Practically this treatment gave palliative results in one cow, but a second had to be slaughtered before the end of the experiment. Slaughter of the first cow showed no encapsulation, and pus from lesions caused tuberculosis in the guinea-pig inoculated. Following a description of Guerin and Calmette's vaccination methods for elimination of T.B. in cattle herds, a culture is to be grown on bile media with a view to immunizing New Zealand cattle in the future.

Tuberculin Testing.—Following a report on intradermal testing of cattle, published by the Medical Research Council, advantage was taken of the presence of a number of cattle on the farm to try out tuberculin tests as far as possible with material to hand. It was found that: 1. Intradermal testing had no advantages in accuracy over the usual subcutaneous method. 2. That the time employed in carrying out the double test made the test impracticable in the field. 3. The test could not be employed easily in the modern bail. 4. The usual caudal fold test was more easily applied and gave results just as reliable. 5. Experience was required to read an intradermal test. 6. Sloughing or serous leaking through the skin occurred often at the seat of inoculation. 7. Intradermal reactions were not decisive when given too closely together as regards time. In this it was as unreliable as the subcutaneous method. The Calmette ophthalmic method was found to be quite as reliable as other methods, and also had the advantage that it would give results even after several inoculations by other methods. The experiment suggested the wisdom of using more than one test in doubtful cases of tuberculosis.