

unincorporated villages, shows the numerical strength of the farming class in this Province. The total urban population is about 600,000.

HISTORY OF THE PICTOU CATTLE DISEASE.

No. III.

Preliminary report on the Disease of Cattle at Pictou, Nova Scotia, and adjoining Districts, addressed to Hon. J. H. Pope, Minister of Agriculture, by D. McEachran, F. R. C. V. S., Inspector of Stock.

[Continued from last Number.]

The whole of the alimentary tract presented the same pathological conditions and the same sub-mucous infiltration as seen in the stomach.

The liver was pale and firm, but the mucous membranes of the vessels were thickened by infiltration of serum. The gall-bladder was large, its walls about an inch thick, but only containing about three ounces of bile of a dark green colour. The spleen was of a normal size, but firm and bloodless, the trabeculae and malpighian bodies very distinctly seen.

The kidneys, normal size but pale, and surrounded by a quantity of soft flaccid fat and a thick effusion of lymph.

The bladder was empty, pale, and its sub-mucous layer œdematous.

The diaphragm also shared in the general condition of dropsy, thinness and pallor of its muscular coats. The lungs were pale, but free from traces of acute disease. The heart was pale and all traces of surrounding fat were absent. The pericardium was thick and contained a quantity of fluid. The pleura was thick œdematous, but free from adhesions. The brain was soft and pale in substance, except when congestion was caused by the concussion which killed the animal, and the subarachnoid fluid was greatly increased. The spinal cord presented the same general appearance.

The effusion, when escaping from the abdomen was clear as spring water and flowed freely; when left exposed to the air for a few minutes it became gelatinous, but clear, soft and easily broken up.

The blood was dark in colour, and in ten minutes settled in the test tube into a firm clot filling the tube about two-thirds which could be lifted entirely out of the tube, so firm was the coagula, while the serum was scarcely coloured. It rapidly, however, underwent decomposition, the corpuscles parting with the colouring matter which coloured the serum a dark red colour.

A microscopic examination of the blood within an hour of being removed from the body, showed no bacteria, but a few filamentous bodies were present. The red corpuscles were very small, stellate,

and showed no tendency to form rouleaux. The proportion of white corpuscles was greatly increased.

Post mortem No. 2.—A small black steer, four years old, very thin and feeble, said to have been ill for over two weeks. Pulse 72, respirations 24, short and shallow, temperature 101 $\frac{1}{2}$ °. The abdomen is round and dependent, diarrhoea of black fetid evacuations. Killed by a blow from an axe. The post mortem lesions correspond in every particular with those observed in David Foote's steer, except the gall-bladder which was about double its normal size; its coats were thick and œdematous and it contained about fifteen ounces of thick blackish-green bile.

About four gallons of clear serum escaped from the belly when opened. The chest contained no fluid. The thoracic organs were healthy but pale.

Similar post-mortem lesions were discovered in two animals killed for the purpose, in an investigation conducted by William McEachran, M. D., V. S., and Dr. E. F. Thayer, of Newton, Mass., one of the recently appointed Cattle Commissioners of the United States Treasury Department, who was sent on behalf of that Government to investigate the disease, and to report whether or not it was contagious, with a view to prevent the importation of hides from Nova Scotia into Boston and other United States ports.

MICROSCOPIC EXAMINATION OF FLUIDS AND TISSUES.

(By Professor Wm. Osler, M.D., F.R.C.P.L.)

Having brought with me for future examination, blood in capillary tubes hermetically sealed, blood in test tubes closely corked, serum in vial, serum in capillary tubes, portions of muscle, liver, spleen, kidneys, stomach, and intestines. The solids were preserved in methylated spirits.

To aid me in arriving at correct conclusions as to the nature of the disease, I submitted the above mentioned fluids and solids to Professor Osler, Pathologist of McGill University, with a request to examine them. I here subjoin Dr. Osler's report which, for the reasons given by him, viz., the putrefactive changes in the fluids and the action of the spirits in which the solids had to be preserved, the results of the experiments conducted by him are not satisfactory.

Physiological Laboratory,

McGill College, 31st July, 1880.

"Professor McEACHRAN.

"DEAR SIR,—I beg to submit the following Report on the specimens handed to me for examination on the 26th inst., consisting of (1) test tube full of blood; (2) small pipettes full of same; (3) bottle

full of serum; (4) bits of liver, spleen, lung, muscle, intestine and stomach in spirits in a bottle.

"The examination of the portions of the solid organs gave no clue to the nature of the disease. The spleen tissue is apparently healthy and contains no bacilli. The epithelium of the kidney and the liver cells are cloudy and very granular. The submucous coat of the stomach and intestine is much infiltrated with serum. There is nothing abnormal in the muscular substance.

"The blood had begun to decompose. The red corpuscles still contain the colouring matter; many of them are small and irregular, otherways natural looking. The white corpuscles seem somewhat increased in number.

"There are no definite rod-shaped bacteria or bacilli, but certain filaments occur in considerable numbers and which contain little spore-like bodies. These structures bear a close resemblance to the developed or mature form of the bacillus anthracis, the supposed excitant of the disease anthrax.

"With a view of ascertaining, if possible, the nature of the disease the following experiments were made with the blood:—

"I, 26th. Inoculated a guinea pig with blood containing filaments and spores resembling those of anthrax.

"28th. No bacilli having developed in the blood.

"31st. Remains well.

"II, 26th. Inoculated guinea pig with blood; result, negative.

"III, 26th. Inoculated a young rabbit.

"28th. Blood contains no bacilli.

"31st. Remains well.

"V, 27th. Inoculated a mouse with the blood.

"28th. Blood contains no bacilli.

"29th. Found dead; tail at site of inoculation swollen; spleen contains bacteria, and small filaments, but not those of anthrax; blood contains a few rod-shaped bacteria.

"VI, 27th. Inoculated a mouse with the blood, died to-day; same condition as in experiment 5.

"Death in these two animals resulted from septæcemia, not from the development of the anthrax bacillus. When blood has undergone decomposition, the activity of the virus is greatly diminished or it may be destroyed, and this must be borne in mind in considering the negative results of the experiments.

"Yours, &c.,

"WM. OSLER, M.D., M.R.C.P.,
London.

MANNER IN WHICH IT IS SUPPOSED TO SPREAD.

Mr. Donald Fraser, a farmer living a few miles from Pictou, traces it in his stock to a cow belonging to a party living