

TESTS AND TREATMENT OF TUBERCULOUS CATTLE
—
EVIDENCE
OF
DR. DUNCAN McEACHRAN
VETERINARY INSPECTOR
BEFORE THE
SELECT STANDING COMMITTEE
ON
AGRICULTURE AND COLONIZATION
1900

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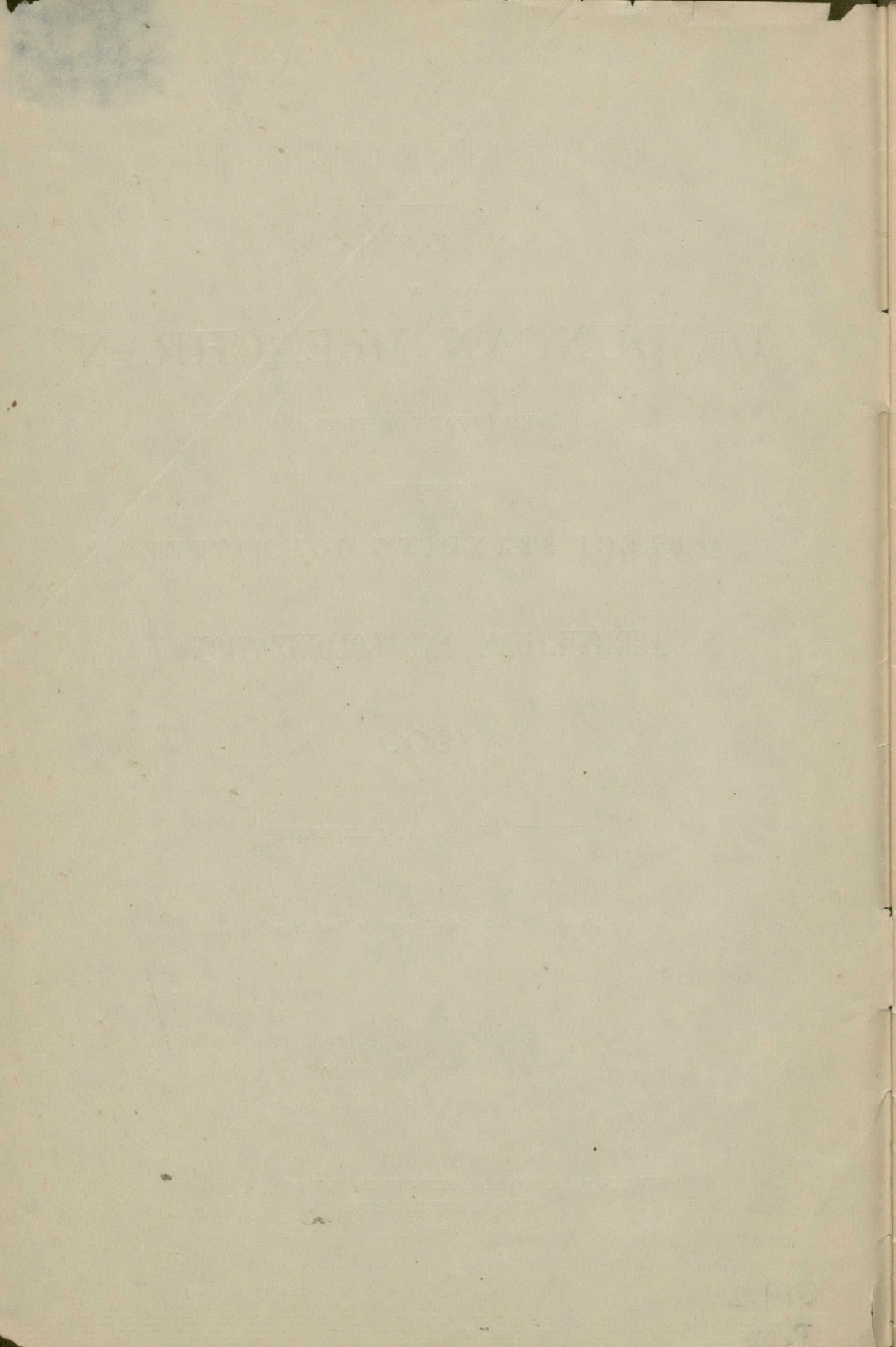
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TUBERCULOSIS IN CATTLE.

COMMITTEE ROOM 46,
HOUSE OF COMMONS,
WEDNESDAY, June 20, 1900.

The Select Standing Committee on Agriculture and Colonization met here this day at 10.30 o'clock a.m., Mr. McMillan, Chairman, presiding.

THE CHAIRMAN.—We have here with us to-day Dr. McEachran, Chief Veterinary Inspector for Canada, and Dr. Higginson, V.S., who will tell us about their experiments in connection with tuberculosis in cattle. Before we hear them, though, we would like to have a few words from the Minister.

HON. SYDNEY FISHER, Minister of Agriculture.—Mr. Chairman and Gentlemen,—I feel that this meeting of the Committee is one of very great importance. We are here to-day to hear the account of some work that has been done in Canada which, I think, is of importance, not only to us in this country, but will be sufficiently of interest to be noted the world over, wherever the health of animals is concerned. You have all followed the inquiry into tuberculosis as a disease of horned cattle, and are well aware of the large interest that this disease has assumed everywhere. Very great care, and skill, and time, and money have been devoted to experiments in connection with this disease—experiments or investigations, perhaps I ought rather to say. Parliament was good enough to place in my hands a few years ago a sum of money for the purpose of dealing with this disease in Canada, and you are aware of the work that has been done in that connection. But there is another piece of work which has not yet been made public for reasons which I will state shortly, and which we hope to-day to make known to you and, through you, to the public at large.

A few years ago our friend and fellow-member, Mr. Edwards, came to me and informed me that in his very large and magnificent herd of Short-horn cattle tuberculosis was prevalent, and indeed very extensively; that he had this herd tested and found a large number of the animals diseased. It was a great blow, as one can easily understand, to Mr. Edwards, who had a herd which showed outwardly good health and good quality. Discussing the matter with him, I suggested that he should undertake to try to utilize these diseased animals to the best possible advantage, and instanced the work that Prof. Bang had been doing in Denmark as a guide by which profit might be made of these diseased animals. I have frequently said that where animals are of no great value it is best to get rid of them at once, but where you come into contact with a herd where every individual animal in it is worth several hundreds of dollars it seems a waste and shame to destroy them if there is any possible way to utilize them. Mr. Edwards fell in with the view, and undertook to spend a considerable sum of money, and to take great care, and to go to much difficulty to complete the arrangements for the carrying on of this work. I believed that this experiment was of such importance that it was well it should be watched and checked officially, and the results published for the benefit of the community at large, and I considered it was of great public advantage to Canada that we had in Mr. Edwards, his buildings, arrangements and farm, the opportunity of carrying on this work at the expense of a public-spirited citizen, with only the expense to the country of checking it and reporting on it.

I therefore secured the services of Dr. Higginson to take the work of looking after these experiments. Dr. Higginson has been constantly and uninterruptedly

at Rockland with Mr. Edwards' herd since then, watching all the experiments and noting all the results as an officer of my department. Mr. Edwards has followed the scheme laid down by Dr. McEachran completely, carefully and thoroughly, and Dr. Higginson has been there as an officer of the department to see it was so done and to check and make elaborate notes of the work. We have here to-day Dr. McEachran and Dr. Higginson to give notes of the work to the Committee and through it to the country. I may say before sitting down and leaving it to these officers to give the details, that the results are eminently satisfactory and extraordinary, and show in a marked degree the same results that Prof. Bang's work in Denmark have shown, that they corroborate his work almost completely, and that here in our midst, close by our capital, we have had a work going on which is of immense value in regard to the investigation of this disease. The result of the work, I think I am safe in saying, and I think you will judge when the details are laid before you, are such that we can say that the careful utilization of animals diseased with tuberculosis is quite possible, and that it is quite possible for those who have the most valuable herds to find out whether these herds are in any way diseased and if so to utilize them without slaughtering them, so that they may in a short time practically speaking eliminate the disease from the herd without the loss which immediate slaughtering would entail, and that in a short time with the proper carrying out of arrangements such as have been carried out by Mr. Edwards, even though the disease may be found in any of the great thoroughbred herds of the country—a possibility which I must recognize though I hope it will be rare—the owners of these herds will feel sure they can utilize these animals for years and eliminate the disease.

By Mr. Sproule :

Q. You mean to keep them on ?

A. No, I mean gradually getting rid of the animals diseased as their utility ceases, but in the meantime keeping them and breeding from them without the produce of the diseased animals being necessarily diseased or even likely to be diseased. I won't detain the Committee longer, but I think it well to put this short statement before them, and I ask them to pay careful attention to the statements which Dr. McEachran and Dr. Higginson will lay before the Committee, because I think these statements are of such value to the live stock breeders of Canada that this meeting of the Committee is one of the most important we can hold during the session of parliament.

THE CHAIRMAN.—We will now have the pleasure, gentlemen, of hearing from Dr. McEachran regarding these experiments which were carried out with Mr. Edwards' herd.

DR. DUNCAN McEACHRAN, F.R.C.V.S., Chief Veterinary Inspector for the Dominion of Canada, being present at the request of the Committee, made the following statement:—

DENMARK ALARMED.

MR. CHAIRMAN AND GENTLEMEN,—Reference has been made by Mr. Fisher to the work of Prof. Bang, who is the chief veterinarian for the government of Denmark. It is well known that within the last ten or fifteen years Denmark has come rapidly to the front in the development of her dairying interests, so that to-day they are the largest producers of dairy products in the world, and even export largely to Great Britain butter and other dairy products. When the government of Denmark took this matter into their serious consideration, they were met with the difficulty of the existence to a large extent of a contagious disease, tuberculosis, which is well known to be the analogue of consumption in the human family, and well known also to be so closely related to each other that consumption in the human family has often been produced by people using milk, butter or even cheese,

if not sterilized, from animals suffering from diseased udders. Fortunately diseased udders are not a common occurrence, otherwise consumption in the human family would be much more prevalent.

The Government of Denmark set Prof. Bang to work to devise some means by which these animals could be utilized without absolutely destroying them. In Denmark they pay great attention to breeding, and by careful selections had produced certain families of valuable milking strains which had taken years of careful breeding to cultivate. To deal with them as is usually done with contagious diseases, viz., kill them off, would be setting back the whole dairy industry of Denmark for many years.

PROFESSOR KOCH'S DISCOVERY.

Some years ago Prof. Koch, in experimenting to find a cure for consumption, cultivated virus from the bacilli from the bovine tubercle, and he expected that the injection of its attenuated product, tuberculin, would cure that disease in the human subject. It did not, but on the contrary aggravated the disease; but it was found that wherever tuberculin was injected in consumptive people it caused fever, quickening pulse and elevating the temperature, conditions which showed that consumption existed. Finding it was useless in the human subject as a curative agent, experiments were made with animals and it was found, and found conclusively, that it is an almost absolute test of tuberculosis in them. It is true it does not indicate the degree to which the disease exists, but it indicates its presence even where it is impossible to detect it by chemical examination. I want you to carry that in your mind to explain something in this report that tuberculin may not always be infallible, but where honestly applied is a very valuable means of discovering and promoting the eradication of tuberculosis. We find in this country, judging from the tests made during the last three years, that it is correct in 98 per cent of occult cases. Prof. Nocard of France, whom I met while over there in 1898, says 'tuberculin cannot lie, never does lie.' Prof. Bang does not claim so much. Prof. Ostertag, in Berlin, agrees with Prof. Bang, he claims correct diagnosis in 87 per cent. The United States claim 98 per cent as we do, so you will see it is a very reliable test although it does not show the degree to which the disease exists.

PROFESSOR BANG'S TREATMENT OF TUBERCULOUS HERDS.

Prof. Bang using this test in the cattle discovered all the diseased animals in the herds tested. He then conceived the idea from post mortems on calves that the disease is not hereditary, that heredity exercised but very little influence in its prevalence, and that if the disease was not hereditary but contagious the calves taken from these cows, even if the mothers were diseased, were removed to sterilized buildings or buildings never used by diseased animals, and fed on sterilized milk or milk taken from cows never diseased, they would be free from the disease and so the purity of blood built up during these years of breeding would be saved. Experiments were made and it was found that tuberculous animals reacted even when they did not disclose the disease by clinical symptoms, whereas others did not.

His observations and those of others disclosed the fact that all tuberculous cattle are not equally infectious; that those with diseased udders give virulently infectious milk; those with diseased lungs coughed up bacilli, which also were given off when the intestines, the uterus or the kidneys were diseased. In fact that in all cases in which organs the excrement or secretions from which are passed out of the body, become diseased, the bacilli drying may be moved about and inhaled in air currents and so spread the disease. Therefore, in selecting animals he took those in which the disease was only found by tuberculin, and with them conducted his breeding experiments. These animals were put into a special building and there kept till they were slaughtered or died—in fact quarantined for life—but the calves were taken away before they suckled, before the mother nursed them, and were with

most gratifying results fed on milk from healthy cows or milk which was sterilized. With very few exceptions the calves proved to be healthy. To Prof. Bang belongs the credit of giving this most valuable discovery to the world.

I visited Prof. Bang in January, 1898, spent a week with him and discussed his system fully, so that when the minister, in June of the same year, informed me that tuberculosis had been found in the herd of Mr. Edwards and asked me to visit Mr. Edwards' farm and advise him how to carry out Prof. Bang's system, I did so, and was delighted to find that Mr. Edwards, with commendable public spirit, was willing to allow me to suggest any experiments that occurred to me, based on the knowledge and information I had acquired abroad, and these experiments he would see were carried out to the letter. Now, I do not think I can do better than read the letter sent to Mr. Edwards, telling him the proceedings to take, which will describe to you what I suggested. It is as follows:—

MONTREAL, June 29, 1898.

DEAR SIR,—‘I would suggest that in dealing with your cattle with a view to carrying out Professor Bang's system, by far the best plan is to remove every reacting animal young and old to an isolated farm which will be all the better if several miles away from your main farm buildings.

‘As none of them at present show any clinical symptoms they can be bred from and their calves if removed as soon as born and nursed by tested cows in a building, say the home farm buildings, which have been thoroughly disinfected, or better still in a new building, which you propose to erect in rear of the main byres, the greatest care being exercised in preventing the cow licking her calf, or its sucking the mother. These calves are to be tested with tuberculin when six weeks old, and any reacting must be killed. They will be tested every six months, thus making sure that no tuberculous ones remain amongst them.

‘By this means you can preserve the improved blood and raise a healthy herd from the diseased cows. These cows should be kept in the best of hygienic surroundings—and kept out of doors as much as possible—any of them developing clinical symptoms should be destroyed. I would suggest as an experiment that a few common calves from healthy cows (both cow and calf having been tested) be put on to suckle the diseased cows and cohabit with them to prove the communicability of the disease by this means, and a few similar calves be kept in a non-infected building perfectly isolated and fed on milk drawn from the diseased cows, both sets of calves being tested every three months: any reacting being killed and a careful post mortem examination being made.

Now, I just wish here to state that here was a breeder with a valuable herd of Short-horns. If any other system had been adopted, it would have stopped the sale of the cattle at once. Dealers knowing there was tuberculosis in the herd would not have bought them. Now, you see a man with a herd if he follows this system and isolates the cattle affected and the cattle the progeny of which he is offering for sale he can go on selling them as Mr. Edwards did.

‘The breeding of the non-reacting portion of the herd can thus go on with every confidence, the testing being repeated every three months, and any reacting cattle removed to the diseased herd. The byre should be disinfected on every occasion a reaction takes place. By this means as I explained to you your business of breeding and selling can go on undisturbed; the diseased ones having been removed and being miles away from your healthy herd.

‘I have considered your proposition to divide the large home byre by a close board partition into two (1 and 2) to keep the healthy animals in No. 1 and the diseased animals in No. 2. While it would be quite possible to carry out Bang's system by this means, I would strongly urge the advantages of removing them to a separate farm as above indicated. Buyers would certainly have more confidence in the freedom from disease if there was absolutely no disease on the premises or diseased cattle on the farm.’

Now, I may say that in Denmark, where as in Canada, many of these cattle are in the hands of poor men who cannot put up new buildings or get new farms as Mr. Edwards did, at the same time Professor Bang has succeeded admirably in cutting off portion of the byre by tongued and grooved boards, even with a door between them. But Bang did not recommend it and I certainly would not. I think it is better in this country where lumber is so cheap to put up new buildings and isolate the cattle.

‘Should the diseased cattle have more milk than can be used by the experiment calves, it may be made use of for feeding purposes for calves or pigs without risk of infection if it is raised to 180° F.’

Now, there is a very important statement, which shows that not only the animals can be used and saved, but their milk may be used, as Mr. Edwards says it was used in his case.

'This temperature will kill the bacteria, without giving a taste to the milk or interfering with its usefulness for butter and cheese making, such as occurs when it is boiled. This sterilization will require special apparatus and experienced management.'

Mr. Edwards provided special sterilizing apparatus and used it with excellent effect in sterilizing milk drawn from cows which had shown reaction.

'In the event of your deciding to kill any of the reacting cattle—on making a post mortem examination if the disease is found to be limited and local—the flesh is considered fit for food, but it should be thoroughly cooked before being eaten; if it is general in the cavities of the belly and chest the flesh should be condemned.'

That is important. It is the experience of the whole scientific world that the flesh is quite fit for food when the disease is local, and not general. When it affects the mesenteric glands, the bronchial glands, or the organs of nutrition and general circulation, the muscles and flesh are apt to contain bacilli, but if it is local—as when occurring at the bifurcation of the trachea, just where the air tube passes off to the right and left lungs; which is a very common situation—and if there only; the flesh may be quite fit for food. 'But it should be thoroughly cooked before being eaten.' These are the four conditions that are known to be specially infective and animals showing clinical symptoms of these conditions should not be kept in the herd on any account, but should be destroyed and no use made of them:—

'A, when the lungs are specially affected; b, when the udder is diseased; c, when there is diarrhoea, indicating disease of the intestines; d, when there is tuberculosis of the uterus. No cattle should be brought into the herd without being tested and found free from disease. Disinfection cannot be too thoroughly done. Every board, joint, corner or crack or crevice should be thoroughly exposed to steam which you can easily arrange; then with a spraying pump a solution of commercial carbolic acid, a pint to two gallons of water, should be thoroughly sprayed on to the divisions, floors, feed boxes, walls and ceilings, and the loose boxes whitewashed to a height of eight feet from the floor.'

Mr. Edwards used a solution of creoline; it is a very simple substance to use, easily mixed and very easily applied.

VENTILATION.

'I would suggest that the ventilating shafts be enlarged and divided as I explained to you verbally and as indicated by the following rough diagram, the division boards coming only to within three or four feet from the ceiling—with a regulating shutter. It may be divided into two or four shafts; if four they should be placed at the points of the compass. I will see that Mr. Higginson is well instructed in all the details of testing and carrying out the suggestions made above—and in recording regularly symptoms, temperature and reactions, also observations as to the effects of exposure to infecting media. I may say that being a firm believer in Bang, I feel satisfied that you can rid your valuable herd entirely of the disease with but little sacrifice, owing to their being useful for breeding from; a position once attained with a herd of such excellence in individual merits and breeding, will enable you to command a market in the United States or Canada far beyond your ability to supply, while others who are indifferent about it will find it difficult to sell animals which cannot be guaranteed free from tuberculosis, or evidence produced by their having stood the tuberculin test.

'Yours very truly,

• DUNCAN McEACHRAN,

'Chief Inspector.'

That, gentlemen, is the letter of directions which I wrote to Mr. Edwards and which he placed in the hands of Dr. Higginson and which was carried out to the letter. Will Dr. Higginson read the report?

Mr. EDWARDS—I think if you would read it, Dr. McEachran, we would be glad

DR. HIGGINSON'S REPORT TO MINISTER OF AGRICULTURE.

A. This is Dr. Higginson's report, addressed to the Minister of Agriculture, and dated at Rockland June 9.

'I have the honour to report to you as follows regarding the experiments carried on by me under the direction of Dr. D. McEachran, Dominion inspector, with cattle affected by tuberculosis on the farm of W. C. Edwards & Co., Ltd., Rockland, Ont.

In the spring of 1898, it was discovered for the first time that tuberculosis prevailed to a considerable extent in the above named herd, while at the same time the entire herd presented a robust, vigorous and healthy appearance and no outward symptoms prevailed whatever which would lead to the slightest suspicion that tuberculosis was prevalent in the herd.

'On accepting the appointment made by you to carry out certain experiments, and on receiving my instructions from Dr. McEachran, I proceeded as directed by him as follows:—Every animal in the herd was subjected to the tuberculin test and all animals which reacted under the test were separated distinctly from the animals which did not react, and since that date the two herds have been kept as positively and distinctly separated as if they had been many miles apart. The stables and premises in which the herd had been kept previous to the discovery of the disease were most carefully cleaned and thoroughly disinfected as directed by Dr. McEachran, with the use of carbolic acid, sulphur and creoline, and all were carefully whitewashed. A new stable and sheds were erected at some distance away in which to house the portion of the herd which was found diseased, and in summer the two herds have been kept in separate and distinct pastures far removed, so that there has been no contact whatever since the first separation was made. In the spring or early summer of 1898 both stables and sheds on the farm were carefully cleaned and thoroughly whitewashed, and I understand the same is to be now done again in a few days, and is to be an annual process each summer hereafter on this farm. In the season 1898-'99 twelve calves were dropped from the cows of the diseased herd, three of which were lost within a few days of their birth, which loss I attribute to the immediate change to nurse cows without having any milk from their dams. Of the nine calves successfully raised, five were raised on nurse cows and four were raised up on their own mother's milk, which was sterilized before being fed to them.'

That is very likely to be the case because the new-born calf requires the coles terine contained in the first milk to clear out the meconium from the intestines, so it is quite likely Dr. Higginson's explanation is the true one.

'In May, 1899, I again tested the entire herd, including the nine calves so raised, with the following result:—The nine calves here named, four of which were heifers and five of which were bulls, all passed the test most satisfactorily, but in this test three of the cows which passed the test the previous spring reacted, and seven of the cows in the diseased herd did not react in this test. In the spring of 1899 I took a calf from an outside healthy cow, which cow I tested, but which did not belong to or have any connection with this herd, and I had it raised on the milk of one of the diseased cows, the milk being in its natural condition as taken from the cow. I also raised two late calves from diseased cows on pasture, allowing them to run with their dams the entire summer. In October I tested the three calves above stated and all passed the test satisfactorily. In the same month before beginning to stable the cattle I again tested the healthy herd, all passing the test satisfactorily.'

By Mr. Sproule :

Q. But did he test the calf as well ?

A. Will I read that again : 'I also raised two late calves from diseased cows on pasture, allowing them to run with their dams the entire summer. In October I tested the three calves above stated and all passed the test satisfactorily.'

Q. But in the case of that calf which he took from an outside healthy cow he tested the cow but not the calf?

A. We do not test calves till six weeks old, they are too delicate; the result showed the calf was healthy.

The report continues:—

‘I will now deal with the results for the season of 1899-1900. Eighteen calves were dropped from cows which had responded to the test. This season one calf only was lost and none were raised upon sterilized milk. Six of these calves were raised upon their own dam’s milk, but never entered the premises in which their dams were housed, but were kept in entirely separate quarters and sucked their mothers in the open yard, not being allowed together longer than just a sufficient time for the calves to suck. Eleven calves from diseased dams were raised on nurse cows, in each case the calf sucking its own dam once before being transferred to the nurse cow.

‘This spring I again carefully tested the entire herd with the following results: In the healthy herd, including in its number the four heifers which were raised the previous year from diseased cows, all passed the test most satisfactorily. Of the six calves raised on their own dams as described, five passed the test and only one responded. Of the eleven calves raised upon nurse cows as described, ten passed the test and one only responded. In this test eleven cows in the diseased herd showed no reaction. In this eleven were included five which showed reaction in the spring of 1898, and were included in the seven which showed no reaction in the spring of 1899. The remaining two of this seven were slaughtered.

‘Since the time I took official charge of this herd, all animals slaughtered from the herd were slaughtered under my supervision and inspection. In November, 1898, twenty-two animals were slaughtered. Of this number I condemned four as unfit for food. In the eighteen animals whose beef I found perfectly good for food, slight traces of the disease were found in the lungs, and in some instances in other internal parts, but in each instance the beef was perfectly sound and good. In April, 1899, I had slaughtered one cow whose carcass I found perfectly sound and good, but found slight traces of the disease in the lungs. In June of the same year I had another cow slaughtered whose beef I condemned as unfit for food. In December, 1899, I had two cows slaughtered whose beef I found sound and good. In one case, however, I found slight traces of the disease in the lungs, but in the other case I could find no trace whatever of the disease. In April, 1900, I had another cow slaughtered whose beef was sound and good, but I found slight traces of the disease in each of the lungs and the liver. Again in May of the present season two cows were slaughtered, in neither of which any signs of the disease were perceptible to the naked eye. One of these cows and the one killed in December, 1899, which showed no trace whatever of the disease were included in the seven which were among those which reacted in the spring of 1898, but which showed no reaction in 1899.

‘The foregoing gives as briefly as I can put it the result of the experiments which have taken place, and the results from slaughter from this herd since my appointment by you in the spring of 1898, and if you will allow me I will give you the deductions which I personally draw from the experiments which have taken place. First, there is now no doubt whatever in my mind but that with reasonable care tuberculosis can be eradicated from any herd, and it is not at all necessary or desirable to slaughter valuable breeding animals. Nor do I consider it essentially necessary that the large expense W. C. Edwards & Co. have gone to need be gone to to the full by others in their desire to profit by the satisfactory and valuable experiments that have been carried out on their farm. Reasonable separation I consider desirable, and good drainage, good ventilation, and plenty of sunlight, as well as general cleanliness, I consider essential in preventing or eradicating the disease. Housing cattle too closely together in dark, unwholesome and ill-ventilated stables in my mind has done more to promote this disease than any other cause. That sound calves can be successfully raised from both diseased dams and sires is fully established by the experiments that have taken place here, for I may here state,

that one of the three stock bulls kept on this farm is diseased and his calves come out as successfully as those of the sound bulls. Further, from the experiments which have taken place here it is clear to my mind that, while there is unquestionably danger in calves being nursed by their own dams who are diseased, this danger I, however, think exists more particularly in case of diseased udders, uterus or intestines, and in cases where the cow suffers from generalized tuberculosis; but I think it possible that many tuberculous cows may suckle their calves if reasonable precautions are taken as was done in the experiment subsequently described. I would not, however, recommend this practice, it is attended by too much risk. That the disease can be cured I am unable to say; the experiments which have taken place here do not warrant me in expressing an opinion. I am, however, firmly convinced that under such conditions of ventilation and proper housing as I have described, with separation, the disease can be checked, and in a reasonable time totally eradicated.

'I will simply add this, that the general condition of the stock on this farm, so far as all external appearances would indicate, has been of the very best, since my experiments began; that without the tuberculin test no discovery of the disease could have been made, and, while the test may not always be infallible, all that has transpired here to my mind most strongly recommends its usefulness where honestly applied as a great means of discovering and promoting the eradication of tuberculosis. All of which is respectfully submitted.

'I have the honour to be, sir,

'Your most obedient servant,

'GEO. W. HIGGINSON,

'Veterinary Surgeon.'

DETAILS respecting each animal which calved seasons 1898, 1899 and 1900, and their produce, in matter of experiments with tuberculosis, on farm of W. C. Edwards & Co., Limited, Rockland, Ont.

1898.

No. 1, *Lady Lancaster*.—Bull calf by diseased sire; sold when twelve months old. Twice tested.

No. 2, *Madge Hamilton*; No. 3, *Bonny*.—Both had bull calves by diseased sire. Were twice tested, and were sold at about eleven months old.

No. 4, *Grand Duchess*.—Bull calf by sound sire. Tested twice, and sold at about five months old.

No. 5, *Lady Augusta*.—Heifer calf by sound sire. Twice tested as a calf and then tested as a yearling. Nos. 1, 21, 31, 4 and 5 all suckled a nurse cow.

No. 6, *Sittyton Verona*.—Heifer calf by sound sire.

No. 7, *Geanie Girl*.—Heifer calf by diseased sire.

No. 8, *Pine Grove Clipper*.—Heifer calf by diseased sire. Nos. 6, 7 and 8 were raised on sterilized milk. Tested twice as calves and again as yearlings.

No. 9, *Louise*.—Heifer calf by sound sire. Twice tested as a calf and also as a yearling. Fed on sterilized milk.

No. 10, *March Violet*.—Bull calf by sound sire. Died when three days old. Cause of death due to change of milk.

No. 11, *Darling*.—Bull calf got by sound sire. Died about three days old. Cause of death due to change of milk.

No. 12, *Mary Leslie*.—Heifer calf by diseased sire. Calf little premature and died about two days old.

No. 13, *Minonette* ; No. 14, *Annie Leslie*.—These calves were got by unknown sires and suckled dams on pasture. Tested once at about five months old and were sold to butcher.

1899-1900.

No. 1, *Lady Lancaster*.—Heifer calf got by sound sire. Calved in September, 1899. Dam reacted in both tests.

No. 2, *Madge Hamilton*.—Heifer calf by sound sire. Calved in October, 1899. Dam reacted in both tests. Both these calves (Nos. 1 and 2) were suckled by nurse cows.

No. 3, *Bonny*.—Died. Cast in ditch.

No. 4, *Grand Duchess*.—Bull calf, sired by sound sire. Calved in September, 1899. Suckled dam. Dam showed no reaction in two last tests.

No. 5, *Lady Augusta*.—Calf died. Dam stood first test, but reacted in second.

No. 6, *Sittyton Verona*.—Not calved yet; reacted in both tests.

No. 7, *Geanie Girl*.—Bull calf by sound sire. Suckled by dam; calved in September, 1899; dam reacted in both tests.

No. 8, *Pine Grove Clipper*.—Heifer calf by sound sire; suckled by nurse cow. Dam stood the first test, but reacted in second; calved in November, 1899.

No. 9, *Louise*.—Was slaughtered.

No. 10, *March Violet*.—Heifer calf by sound sire; suckled dam; calved in September, 1899. Calf reacted in test. The dam reacted in both tests.

No. 11, *Darling*.—Bull calf by diseased sire; suckled dam; calved in October, 1899. Dam stood first test.

No. 12, *Mary Leslie*.—Bull calf sired by diseased sire; calved in September, 1899; suckled nurse cow. Dam reacted in both tests.

No. 13, *Minonette*.—Not bred last year. Stood first test.

No. 14, *Annie Leslie*.—Aborted. Dam reacted in both tests.

No. 15, *Mildred Sixth*.—Bull calf by diseased sire. Dam stood both tests. Calved in March.

No. 16, *Amelia Leslie*.—Heifer calf by sound sire; suckled dam. Dam reacted in first test, but stood second; calved in September, 1899.

No. 17, *Canadian Rosebud*.—Bull calf by sound sire; suckled nurse cow. Dam reacted in both tests; calved in September, 1899.

No. 18, *Mildred Ninth*.—Heifer calf by sound sire. Dam stood both tests; calved in October, 1899.

No. 19, *Violet Second*.—Bull calf by sound sire; suckled dam three times, and then was put on nurse cow; reacted in test. Dam reacted in both tests; calved in February, 1900.

No. 20, *Canadian Rosebud Second*.—Bull calf by sound sire; suckled nurse cow; calved in February, 1900. Dam reacted in first test, but stood second.

No. 21, *Lady Lansdowne*.—Bull calf got by diseased sire; suckled by nurse cow; calved in February, 1900. Dam reacted in both tests.

No. 22, *Rose of Autumn*.—Heifer calf got by diseased sire; suckled nurse cow; dam reacted in both tests; calved in May, 1900.

No. 23, *Rose Bloom*.—Heifer calf by diseased sire; died in changing to nurse cow; dam stood both tests.

Prof. McEachran continued—

Now, gentlemen, before sitting down, if you will bear with me a moment, I will read a letter from Mr. Edwards to myself, in answer to some questions I asked him, which brings out some points I think it is necessary this committee should have. He says:—

‘I have seen nothing to lead me to believe that the tuberculin test has had any injurious influence on the course of the disease. It is by no means our opinion that the disease has been stimulated or aggravated by the application of the tuberculin test. All animals that we have tested two or three times continue as hale and hearty as they were previously, and not one animal in our herds has broken down or failed in any way since we began testing. I cannot say that we have proof that can

be relied upon to the effect that the use of tuberculin has checked the disease, but we will not be surprised if we find that in some instances it does. We retested twelve months later all the animals which at first reacted, and of the lot four made no response in the second test. One of the four animals was slaughtered this autumn and on the most careful examination made with the naked eye no trace of the disease could be found. We believe all the same that the disease was there. Since beginning the experiments here we have raised calves on nurse cows, and on sterilized milk, and not one of the calves so raised have responded in the slightest degree to the test; and all have been carefully tested. We have now gone so far as to turn grade calves on to the diseased cows in pasture and we also raised a grade calf on the milk of a diseased cow with the pail; each of those that sucked the diseased cow in pasture were tested, as well as the one fed from the pail, and none of them responded whatever to the test. We have learned a good deal from those experiments and when we are through you will be able to give Canada most valuable information on this subject. Meantime we will be glad if you will treat the whole matter confidentially. We do not think that the test is infallible, but we think it the safest present guide, and we are fully convinced that the honest use of it and a little care should stamp out tuberculosis anywhere. Close contact in confined and ill-lighted and ill-ventilated stables we are convinced is the great means of conveyance of the disease. We are now raising six fine bred calves on the dams, though they are entirely separated and only come together twice a day in open yards. Our belief is that this will prove a success. We are well convinced that the disease can be stamped out in Canada and the Canadians will act foolishly if they do not do it. Your truly,

‘W. C. EDWARDS.’

Now, gentlemen, I may say I visited Mr. Edwards' farm yesterday and was shown over the estate by him. Any lover of fine bred cattle could not enjoy a better day. The quality of the herd was a revelation to me, and these animals all in perfect health, and by this experiment so liberally conducted by Mr. Edwards in the public interest more than his own, and which you see was not supposed to be made public, but he has very generously allowed this matter to come before the Committee and the country so as to allow the country to benefit from a knowledge of the facts of the experiments, which would have cost the country a great deal of money if conducted by the department. I may say that at our station at Outremont experiments are being conducted in the same lines but on a small scale, because we cannot stand the expense. In the report of the minister you will find the reports on Outremont station, some of which you will find interesting as bringing out points not brought out in this report.

By Mr. Sproule :

Q. Were the cattle subject to any treatment during the time they were in quarantine?

A. No.

Q. Then I understand that at the second and third tests made, six animals which had responded to the first test did not respond?

A. Yes, there were five.

Q. What conclusions would you draw, that they were cured?

A. Well, Prof. Nocard is firmly of opinion and states so boldly that many animals are cured. We often find that the disease is cured, and if taken in the early stages you will get a reaction from tuberculin, but in some cases the tubercle bacilli are killed by the tuberculin, but you will find a small percentage in which you will find it very difficult to discover where the tubercle is actually located.

Q. But would not you think that putting these animals under favourable conditions again it only requires in such case to develop it again that the bacilli may be lying latent in the system?

A. Possibly, but it is possible to contract the disease without that. In reference to the report of Dr. Higginson I think Mr. Edwards can give any information.

Q. Then if the bacilli were lying in a latent condition what evidence of its existence there is shown by the test then you take it they might be in that condition and the test not show any signs of tuberculosis?

A. If the tubercles had reached the stage when the tubercles had become calcified, as is often the case, you might not get a reaction. Another case in which you do not get reaction is when the animal is so badly diseased and the blood is so saturated with tuberculin the small quantity of tuberculin injected gives no reaction

We have had cases where a cow has died in a few days after using tuberculin without reaction. So that tuberculin should be used only by very careful men. Therefore I think tuberculin should only be used under government supervision the same as other poisons.

Q. Do you think these experiments lasted long enough to get benefit from the work; only a year and a half; I think from the report the calves came about the end of 1898?

A. No.

Q. Suppose the calves were dropped in September, 1898, it is so close to 1899 that it only gives a year and a half.

Mr. EDWARDS—It is supposed to go on another year?

Mr. SPROULE—You might explain it to the committee now.

Mr. EDWARDS—If you will notice three slaughtered calves have gone through the test and come out satisfactorily. That seems to me a strongpoint. This experiment is going on for another year, but the Minister of Agriculture made the suggestion to me that he would like the public to get the benefit of this experiment as far as it has gone, and I consented to it coming before the Committee. That we can find out something more we expect, but we have already found out a great deal. As to results we ourselves feel perfectly satisfied, the experiment is quite sufficient for us, but I just want to state what the experiment is to be for the next year. We have purchased a number of nurse cows, all of which we have had served by thoroughbred bulls. All the calves are to be crossed next year, the calves of nurse cows to diseased cows and the calves of diseased cows to nurse cows, and we are going to carry on the experiment in that way.

By Mr. Sproule:

Q. Are the nurse cows tested too?

Mr. EDWARDS—I will just state here, Mr. Chairman and gentlemen, that no animal is allowed to come into our herd to-day until quarantined and tested. If we import cattle from Great Britain to-day, and we do, they do not mingle with the others for six months. We made an importation last year and we built new buildings to house that importation. The whole experiment has been carried out under the direction of Dr. McEachran by Dr. Higginson, the veterinary surgeon. I just want to state how the disease was discovered. We were going to export six bulls to Wisconsin and we asked for a test of these for exportation purposes, and there never was a man more thunderstruck than myself when I was told that tuberculosis existed among these cattle. You can understand how a man would be knocked down after he had been for twenty-five years building up this herd of hort-horns. I supposed the whole would have to be destroyed. I spoke to Mr. Fisher and wrote to Professor Craig, of Wisconsin. He said the herd was too valuable to destroy; to follow the suggestion of Mr. Fisher. Everything has been carried out carefully and I think honestly. The report you have heard to-day can be vouched for in every respect. These six bulls we were going to export we did not sell to our fellow farmers—they were destroyed—and no animal was afterwards sold from the farm until the experiment had gone so far that we could sell with safety. The first bull sold after was in 1898 and sold to Senator Cochrane. We were satisfied as to its condition, but we said to Senator Cochrane's son to test him. Every animal hereafter sold shall be tested, and we shall not be one of those who are disseminating disease among the cattle of Canada. No matter how valuable, it shall not go out with any trace of disease. Every animal we sell we sell with confidence; every animal imported is brought in and kept in quarantine for six months.

Q. Is not every one of these tested in quarantine, and tested in quarantine on the other side by veterinarians whose standing is endorsed by the department here?

A. I would say to that, Mr. Chairman, that we are dealing with men and men, and so far as we are individually concerned we are going to examine ourselves.

Q. I ask does not the law provide for a test?

A. I understand the regulations are as follows: That the Dominion Government does not take any responsibility. If importers wish to import I understand it is allowed that the inspection can take place on the other side by gentlemen whose names are accepted, and their examination is accepted for importation purposes. But as far as we are concerned we are going to make ourselves safe as regards the test. We have laid down the rule that our herd hereafter shall be tested twice a year, and no animal, no matter where it comes from, shall mingle with our herd until after six months.

DR. McEACHRAN RECALLED.

By Mr. Sproule :

Q. Then I understand that it is not necessary to apply the test here to cattle imported by regulations of the department; is that so, doctor?

A. The present practice is to accept the certificate of veterinary surgeons who were recommended by Prof. McCall, of Glasgow, the principal of the Royal Veterinary College in London, and the officers of the Board of Agriculture, and the letter that is written to them reads somewhat as follows: 'I would suggest to your Lordship, when application is made by an importer for the name of a veterinary surgeon, a letter be written to the veterinary surgeon from your office explaining this, and at the same time explaining that it does not mean any employment in the Canadian Government service, and that the cost will be paid by the person importing.'

Q. Then I understand the regulations do not exact the tuberculin test in quarantine here?

A. No.

MR. FISHER—Not when they have a certificate from one of these men.

By Mr. Edwards :

Q. Have not the tables to be sent over from the other side, doctor?

A. Yes, the charts have to be sent over with the cattle and we have to approve of them. In some cases we do not approve of them.

By the Chairman :

Q. You would not suggest using diseased male animals with healthy cows?

A. No, not let them within miles of them.

By Mr. Rutherford :

Q. There is one important point touched on this morning, that is the curing of the disease. I think there has been a wrong impression left on the minds of the Committee by a little cross-firing between Dr. Sproule and yourself. Dr. Sproule suggested that if, as you say, the bacilli was in a latent condition—he used the words when you said you had no doubt the bacilli died and became absorbed—and he suggested that if again placed in unsanitary surroundings the disease would break out again. Now, that point wants to be cleared up; if the bacilli is dead, it would not matter what the surroundings were unless there was fresh infection?

A. It would not require to have the disease previously; any animal that is exposed to such conditions would take it.

Q. The point is whether, having had the disease, it would necessarily break out again?

A. Not at all.

By Mr. Edwards :

Q. It would simply be more predisposed?

A. No; there must be disinfection of the premises.

By Mr. Featherston :

- Q. How long has Professor Bang's system been in practice?
 A. About eight years.
 Q. What is the result?
 A. Perfectly satisfactory.
 Q. In some cases we see it only break out in younger animals?
 A. Occasionally.
 Q. Just as satisfactory as ordinary breeding?
 A. Yes.

By the Chairman :

- Q. How long, as a rule, is the animal affected after the test?
 A. The effect produced by the test?
 Q. Yes?
 A. Oh, it goes down within 24 hours; in fact, 12 hours.
 Q. Would it be perfectly safe to apply the test again in one month?
 A. No; three months.

Mr. RODDICK, Mr. Chairman and Gentlemen, I am sure we have all listened with great interest to the report which Dr. McEachran has made and to Dr. Higginson's report, and I think the thanks of the whole farming and dairying community is due to Mr. Edwards for the work he has made it possible to do under these circumstances. He has made it possible to prove by the experiments which have taken place on his farm that Bang is in the right direction. There are one or two things which might be explained and which I will ask Dr. McEachran to explain. It seems that three cows which were healthy became reacting. That is remarkable to me, considering the surroundings were made in perfect condition, that these seven animals were found perfectly healthy and subsequently, when a test was again made, three of these seven were found to be diseased. That surprises me a little and I cannot explain it to myself, considering you had the surroundings so thoroughly disinfected that it was impossible for these animals to contract the disease from the mangers, from water or from other animals. It shows that the tuberculin test may be a little fallacious in some cases. I don't know how you will explain it, but it shows that one may not take it for granted always that this shall be perfectly true in its results, and that probably earlier tests than those made might be made in some cases, that the tuberculin itself may vary very much or the effects of the tuberculin may vary or the parties may not be careful. These are points which cropped up in my mind, but altogether I think the results are satisfactory, and if it can be proved that cattle can be rid of the disease in this way of course it will be very much less expensive than the process elsewhere and which is recommended for this country, that is the destroying of herds. This is not all a desirable thing, in fact it will lead to a great deal of trouble and mischief. However, I think myself with this plan of Bang's very much may be done now and immediately. I think if the Dominion Government and Parliament will come forward at this moment and assist the little island of Prince Edward in the scheme they are about to develop, it would be doing good. They are anxious to begin a scheme, and I understand they have already the bill before their legislature which prevents the introduction into that island of animals diseased and provides for the slaughtering of animals clinically diseased, which, as Dr. McEachran says, means animals very much diseased, —and which can be discovered by the stethoscope—the grosser forms of tuberculosis. The milder cases are those which can only be detected by the tuberculin test. If the Government would aid Prince Edward you would there have the nucleus of a great scheme. You would have Prince Edward Island freed from the disease in a reasonably short time, and from that island could be drafted healthy animals in a short time. You could then begin by cutting off a portion of Nova Scotia, or beginning from the other end and cutting off a portion of British Columbia, and we would then have a healthy Canada in a few years.

By Mr. Sproule:

Q. You mean turning it into a breeding station?

A. Yes; all these points would have to be attended to. You would find all the breeders in the world would come to Canada for their breeding cattle. The expense might be great, but it would repay the Government of Canada and of any province which is willing to take it up. I quite agree with Dr. Rutherford and Dr. Sproule that these tests should be continued a little while longer, and that what is going to be done on Mr. Edwards' farm should be carried out, that of transferring diseased calves to healthy cows and vice versa. That would take some time, but will be a useful experiment.

The CHAIRMAN—I would ask the leader of the opposition, whom I see present, to say a few words on this matter.

Sir CHARLES TUPPER—I would like to say a single word on this important question. I would thank Mr. Edwards for letting me know it was to be brought up here this morning. I listened with intense satisfaction to everything that has taken place. I agree with Dr. Roddick that the entire community and the cattle holders of Canada are greatly indebted to Mr. Edwards for carrying out under the very able superintendence of Dr. McEachran and Dr. Higginson, the veterinary surgeons, these experiments, but I think we may go further and say that the whole population of Canada have a most deep and vital interest in this question. It is known that tuberculosis practically represents consumption in the human family, and it is known that for a long time and until a recent period the terrible fear that consumption must follow from heredity, and that the children of a consumptive mother must, in the ordinary condition of things, look forward to being attacked by the same disease, was prevalent amongst us. This is a question of supreme importance, not only from the agricultural point of view, but from the point of view of human activities, and if this should be proved as appears so far as these experiments are concerned, as far at least as I have followed them, if it can be proved that the calves of cows suffering from tuberculosis can be removed from the mother and being sucked by healthy animals, can be protected absolutely from the disease, it, to a very large extent, goes to establish the fact that we need not dread as we have dreaded the hereditary tendency to consumption in the human family. It means that by proper exertion, by following out systematically this means of dealing with tuberculosis we can look forward at no distant date to having the whole Dominion free from this disease, that is so wide spread and deeply laid that to deal with it, as pluro-pneumonia has been dealt with, is absolutely impracticable. The enormous cost of sacrificing all the herds where tuberculosis has been found, as has been necessary for pluro-pneumonia, would, from the wide extent of the disease, render it practically impossible to accomplish the object with regard to tuberculosis. But under these experiments carried out with so much care, which really appears to me that vigorously followed up, that system which is so well established, although as you say it has not been proved, that the opinion of some has been taken that inoculation by tuberculin gives absolute immunity. If it gives 18 per cent it gives so small an extent of disease as to lead to the expectation that ultimately you will practically relieve the country from the presence of tuberculosis.

I think under these circumstances we are all greatly indebted to Mr. Edwards, who has, under the wise and skillful direction of Dr. McEachran and his associate, Mr. Higginson, carried out these experiments. And I believe what has been stated to the Committee fully with reference to the hope that by following up the experiments throughout the country, we may hope at no distant day to find Canada free from tuberculosis, and the value of that to Canada cannot be overestimated. Let it be fully understood that not only is Canada free from pluro-pneumonia as we all know, but that there is a country where the cattle can be relied on as absolutely free from tuberculosis, you would give a value to the thoroughbred stock beyond calculation. After listening attentively to what has taken place, I would fail in what I deem to

be my duty if I didn't express the thanks of the country for the work that has been done.

Mr. EDWARDS—I don't wish to take up the time of the Committee, but I want to say a word, if I may be allowed, in answer to Dr. Roddick. It is coming from a layman, but there may be some force in it. Dr. Roddick refers to the three cows which did not react on the first test but reacted on the second. I just want to point this out. The rule laid down by the scientists, in so far as this matter is concerned, that unless the temperature rises two degrees the animal is not condemned. In the animals at our place, we haven't confined ourselves to the limit by any means, but if the slightest suspicion exists, the animal is set aside. Now, I haven't the slightest doubt that there are animals set aside at our place on the first test that had no trace of a disease. If an animal is a highly nervous animal the response may be quicker, and another thing, animals that are in heat or are nearly in heat, react more readily, and if there is any reaction, we reject them, so that probably animals are set aside that are not diseased. That may be possible.

Mr. RODDICK—Excuse me, but these are found not to react.

Mr. EDWARDS—In the first test the three cows that did not react, did react in the second. In the second test seven cows reacted that did not react in the first. I am dealing with the seven now, not the three. The seven cows which did react in the first, did not react in the second. Now, there is something that came out in Ontario—in Guelph, and perhaps Prof. Robertson, here present, can tell us about that. Some animals were slaughtered there, and it was found that the diseased parts were incised afterwards that was discovered. Now, there may be that curative effect, because, mind you, this seven is not a broken down herd at all. It is a very healthy looking herd, indeed. Now, then, as to the three which reacted in the second and did not in the first. I am speaking as a layman, but remember they were in the premises where there had been so many diseased animals; the infection may not have been absolutely removed in the first cleansing. Little traces, slight traces might remain in some part of it, and that would have an effect on the animals afterwards. That may be possible. Now, another thing, as far as that is concerned—I am not a professional man—but might not the disease just be beginning, or might it not have got far enough to cause a reaction. Really this should be perpetuated. I think if it is further looked into by such men as Dr. Roddick and other professional men, these little matters will find room for explanation.

By Mr. Cargill:

Q. In testing a bunch of cattle do you find on the test a number of them reacted and a number of them did not, and that upon a subsequent test those which reacted at the first test did not respond and those which did not respond at the first test did react?

A. That is specifically stated.

Mr. CARGILL--That being the case I would infer that the tuberculin test is of no value.

Mr. EDWARDS—Now, Mr. Chairman, I place great value on it, I have seen enough to thoroughly satisfy me. Dr. Higginson's test does not say it is not valuable. He says the test is generally correct. I have been trying to explain that very thing. I would make two suggestions; one is that I would invite this Committee to come down and examine the herd and examine the whole condition to see what has been done and I will take them down and take them back with pleasure. I make another suggestion. This is perhaps a very expensive one, but perhaps the Dominion Government can do something after we have done so much, because in this matter we have carried it on at our own expense and don't get one cent on it. The Government pay their officer but there is no compensation so far as we are concerned. Here would be a great feature. Suppose next year the calves are crossed, and you take a certain number of these and have the best bacteriologist and have a thorough scientific dissection and examination and then get the results. That would be worth many, many thousands of dollars.

By Mr. Ferguson :

Q. Had you any evidence at the beginning of this that your herd was in a diseased condition, except the tuberculin test ?

A. None. I venture to say there is not to-day in the world a more healthy looking herd than our herd. Not one animal has broken down since. I say further it could not have been discovered except perhaps by very careful examination with a stethoscope if such could be done, it could not be discovered without the tuberculin. Is there any other way in the world that is known of; if there is I have yet to hear of it, that has proved to be successful at the present time,

Mr. RUTHERFORD—I think with others that this experiment is one of the most valuable not only to Canada but to the world that has ever been attempted with regard to tuberculosis. Of course we know that since 1882, Professor Bangs has been operating on the same lines, but even in his experiments the same variety has not been introduced as in the experiment now going on down the river here. There are a few points which I noted down here on which I would like to speak with a view perhaps of eliciting a little more information and eliminating or lessening the element of danger which I see if this report is allowed to go out to the public without comment. The first is with regard to Mr. Sproule's remarks, namely, the effect of the tuberculin test in curing the disease. I have been using tuberculin ever since it first began to be used in 1888 in testing cattle and I have come to the conclusion without having any direct proof of it, as I do not think any direct proof exists in the world to-day, but I have come to the conclusion that in mild cases of disease the repeated use of the test has a curative effect, but I cannot prove that, and as such it is a most dangerous doctrine to promulgate among the farming community and I think that should be stated so that people will not go away from this Committee or read the report and carry away the idea that the tuberculin test is a cure for the bovine tuberculosis.

Sir CHARLES TUPPER—Its great value is as a diagnosis.

Mr. RUTHERFORD—I think there is no question about that and when we have the highest authorities in the world acknowledging it it is too late in the world to throw doubts upon it.

In regard to the suggestion made by Mr. Edwards and endorsed by Dr. Roddick as to the possibility of having this test still further carried on by slaughter and a careful examination, I cannot say too much in its favour. I think probably that would be the most valuable experiment in regard to the treatment of tuberculosis in Canada that has ever been attempted in the world and I think the Government should certainly give every assistance in its power to the carrying out of this test. It would be better perhaps if it was done on cheaper cattle than the majority of those on Mr. Edwards' farm.

As regards these three cows I want to dwell on the danger of allowing tuberculin in the hands of non-professional men. I think the Government of Ontario made a great mistake when they sent out a man named McRae to educate the farmers in the application of the tuberculin tests, because it is a well known fact that an animal suffering from it tested once, and retested subsequently will not respond in anything like the same degree to the tests. An unprincipled farmer or stock breeder, because there are such in the world, who finds that he has tuberculosis in his herd, by using the tests himself repeatedly will be able to render his animals immune, and will be able to sell diseased animals, male or female, to people in various countries or to his next door neighbour and submit to the test and there will be no reaction, and I consider that to be one of the most dangerous things I ever saw.

Mr. CARGILL—That just establishes the fact that tuberculin is a cure.

Mr. RUTHERFORD—Not at all. This fact has been demonstrated, that while in mild cases there might be doubts as to whether it was curable or not, this fact is well understood, that in a bad case of tuberculosis while the animal may react on the first test it may not react on the second or third test. But that must not be regarded as a cure.

With regard to the three cows that did not react on the first test, I agree with Mr. Edwards that perhaps at the time the first test was made, the disease in these cows was in a period of incubation, that the disease was just taking hold and these did not react. It was quite possible that the other suggestion of Mr. Edwards that some of the bacilli had been lurking in a corner of the building or some place where these cattle were exposed to the contagion explains the matter.

Now, there is another danger. The next danger which I see is the danger of accepting without question the report as to the advisability of allowing calves to suckle diseased cows. I do not believe in that at all, for this reason: that once you admit the principle of allowing calves to suckle diseased cows, you might as well throw open the doors, and allow children to take the milk from these cows. The principle is the same. I admit that in a very large percentage of cases of bovine tuberculosis as well as in cases of human tuberculosis, milk will contain no bacilli, but how are you or I or any other ordinary farmer going to tell the exact moment in which the bacilli will enter the blood stream and become transmitted to the milk? Or, how can you tell which one out of eighteen or twenty cows have bacilli in the milk?

Mr. EDWARDS—My own personal view is this: that if the breeders of Canada would go to work and stamp out the disease entirely, the disease will soon cease in Canada. I think it comes generally in thoroughbred herds, and does not prevail to a large extent among grade cattle, and if breeders will be honest to themselves and to the country, we will have no bulls distributing this disease around. I admit that if this is carried out to the full all over the country it will be a very dangerous thing, but surely the breeder could take care of it. Of all the cows that we have purchased and tested, we haven't had one that we bought in the country respond to the test. Every one of them has proved perfectly sound.

Mr. RUTHERFORD—I would call attention to the fact that a few years ago wherever we found Bow Park cattle we found tuberculosis, among the ordinary cattle, and Bow Park which was looked upon as one of the greatest benefits to the farming community in Western Canada was really a danger, because they disseminated tuberculosis among the ordinary farmers' herds. But nowadays, English importers are paying very much more attention to hygiene than in the earlier days, their stables are better ventilated and lighted and the conditions are better for the prevention of tuberculosis than they were then. We found that the greatest source of danger exists among dairy cows which are kept for milking purposes, and these would not be affected by any action on the part of the breeders to any great extent.

Mr. EDWARDS—These dairy cows do not suckle calves.

Mr. RUTHERFORD—No; but they suckle children, and if you say it is safe for the calf to suckle that cow, you say its milk is fit for children, you can't get away from it. All the experiments that Professor Bang has made have been made with sterilized milk, heused that milk alone. It is an exceedingly dangerous doctrine to preach to the people of Canada, that it is safe under any circumstances to use milk from tuberculosis cows, because although there may be a large percentage of cows that is quite safe, there may be one or two that are dangerous animals, and you can't tell what day they become dangerous.

Mr. CARGILL—I think that is an important point you have brought out, that tuberculosis prevails to a larger extent among dairy cows than what is supposed.

A. Statistics go to prove that consumption in the human family comes with the dairy cows.

Mr. McLENNAN (Inverness) In the Maritime Provinces, there is a tribe of that have not had the advantage of milk or the flesh of the cow, and that have not had the benefit of that, but they are dying off with consumption.

Mr. RUTHERFORD—The Indians in the North-west are dying off in considerable numbers with tuberculosis, and it was unknown among them until the advent of the white man and the dairy cow. It was unknown in Australia until the cow went there; it is unknown in China, because the Chinese do not use milk and butter, it is unknown in the steeps of Central Asia, and in Egypt, because the Fellaheen do not use the dairy cow, and although thousands of Europeans have gone into Egypt for treatment for the disease they have remained immuned.

BY AN HON. MEMBER—Before they had seen a dairy cow or milk, the Indians in the Maritime Provinces had tuberculosis.

A. Contagion will come from the human being as well as from the cow, and I do not for one moment maintain it is the only source of contagion, but that it is a very common source of contagion. The conditions under which the Indians live are exceedingly favourable to the spread of the disease in all parts of Canada.

In regard to the reliability of the test, I have always felt that the greatest care should be exercised as to the test itself. I would not give you the snap of my finger for a certificate of the test unless I knew the man who made it, and knew him to be a man of high standing, because there are so many little circumstances that occur in regard to the administration of the test, so many opportunities for carelessness and unreliability, that I do not place any value whatever upon a test certificate, unless I know the man well, or know well of the man.

By Mr. Cargill :

Q. What do you think of certificates from these Professors in Scotland? Would you consider them reliable?

A. I would like to know them.

Mr. SPROULE—There are some reliable Scotchmen.

Mr. RUTHERFORD—Yes, and some very unreliable Scotchmen, and Irishmen, too. In regard to ridding Canada of tuberculosis, I would like to see it, but I think it is a little bigger contract than we have been led to consider from some of the remarks made to-day. It would be a very difficult matter to rid Canada of the disease.

By Mr. Edwards :

Q. Wouldn't you like to try it in Prince Island?

A. Yes; I think it is well worth trying, but if you have removed every case of tuberculosis animal from that island, as long as you have consumptive men and women going through the stables, you will not get rid of the disease; because as long as a human being can contract the disease from a cow, they also may contract it from a human being.

Mr. DOUGLAS—I have the impression, whether I am correct or not, that consumption perhaps is very prevalent, more prevalent in one part of Canada than in another. I refer to people residing within say five miles of our Great Lakes, and I have noticed the disease very prevalent there, say on the shore of Lake Ontario. It may be a point for the scientists who are here to-day discussing this subject to consider whether the disease is equally prevalent amongst the cattle within a radius of five miles along the shores of the lake, Lake Ontario or the other great bodies of fresh water. If it can be established and shown that it is equally prevalent amongst the stock as consumption is in the human family, then I should have a great deal more confidence in the statements that have been made here to-day; but that is a point I think that is worth investigating and considering, and I think perhaps some light may be thrown upon it.

Mr. SPROULE—I just want to say a word too with regard to these statements. To begin with I think they are most valuable and in the right direction, but I don't

think they have been continued long enough to make absolute data upon which we may rely to draw our conclusions. There is another question—that repeated applications of the test leave the animal which receives them so that it won't react, and from any clinical observations there is no evidence that we can find a trace of the disease. What is it in the animal anatomy that makes it not react? Either that the application has cured the disease or that the test is not by any means infallible, even to the extent of 98 per cent. It seems to me that is the only conclusion you can come to. If it is a remedy that cures the disease, that is the very thing we would like to get; but I think that is yet to be proved.

Now, besides that, if we for instance use a quarantine station like Prince Edward Island, and use it as well for a breeding station, we can eradicate the disease and cure the disease; but is it not a fact that if we take the herd where there is no evidence of the existence of the disease by any means at our disposal to ascertain, that if you put such a herd in unsanitary stables and under unsanitary conditions it will develop, it must have an origin, it shows as well that you may eradicate it, but if you don't keep the sanitary conditions it is quite as likely to break out in these localities. There are two things that should attract our attention. The first is: Are our regulations which we have devised for the purpose of preventing the importation of animals affected by tuberculosis effective or are they not. Mr. Edwards says that it is these cattle when they come out bring it. They have come in on the strength of some certificate from a surgeon in England or Scotland. If that is not sufficient, I have always heard that it is the duty of the government to apply the test on cattle while in quarantine in order to see that it is not imported. What is the result? I will take the case of Mr. Edwards, he is only one of forty or fifty importers, and the result will be that it will be of benefit to him, but it becomes a rather doubtful business, and the Government should step in and provide some regulations that apply a test which would be regarded as an absolutely safe one to guarantee. Another inference is that animals that are fed upon milk that is not affected for the time but came from an infected cow, still the disease must be communicated from one to the other. That suggests a very valuable remedy for us in connection with the dairy stables of our country. And what is it? It is the sterilization of all milk; you can do that, and it is not an expensive thing to do. It suggests the advisability of so changing the law as to compel this to be done. Let the company who is collecting milk for distribution be compelled to sterilize every gallon of it or every quart that they sell to the people of the country; where it is treated in that way it becomes quite innocuous. I think that this suggestion, as the outcome of this, would be very valuable if acted upon, and I may say in connection with that, that I realize to the fullest extent the value of the experiments being made by Dr. McEachran and Dr. Higginson with these cattle of Mr. Edwards, and I think Mr. Edwards is deserving of great credit for the pains and the expense he has gone to to demonstrate that; but the experiments to be made yet will be of great value. I recognize the value of slaughtering diseased animals and destroying them, but the urine and faeces and sputa ought to be tested, because even after you have slaughtered them you may find that in some of the organs the bacilli may be there though they escape observation.

MR. EDWARDS RECALLED.

By Mr. Roddick:

Q. Mr. Edwards, you were asked whether your animals did not look remarkably well before the test was made, and when you were about to sell them; and you said they were in apparent perfect health; but did you have the six subsequently slaughtered and examined for bacteriological signs of the disease?

A. No, they were only examined by the veterinary; but every one showed traces of the disease.

By Mr. Featherston :

Q. After slaughtering ?

A. Yes.

By Mr. Rogers :

Q. What symptoms did they show ?

A. Well, if you have breaking down animals in your herd you will see it; but as far as this herd is concerned their outward appearance would not lead you to believe it.

Q. They were under special conditions ?

A. Dr. McEachran described that because ours were not breaking down. To-day I think it is most valuable to go down and see them.

By Mr. Bell (Pictou) :

Q. What did you do with those animals who were tested and did not react ?

A. They are still there; we did not return any.

THE CHAIRMAN—Perhaps Professor Robertson would like to say a word.

PROF. JAMES W. ROBERTSON, Commissioner of Agriculture and Dairying.—I would just add a word to the most useful and most important information given to the Committee and the country. If we are not yet in possession of knowledge to say how the disease can be stamped out, we do know many ways whereby the disease can be abated greatly, and to a great extent Professor Bang's work in Denmark is doing that in several ways. I may say that when in England lately I found the health authorities were making bacteriological examinations of butter to prevent the importation of butter from diseased cows, and the Danes proclaim everywhere that Bang's system is preventing disease in the herds and that their dairy products should be considered perfect. Now ours has been examined and found good. We have a good name, and we should keep it. We can, by taking every reasonable step to prevent this terrible disease. One of the means is this: In Denmark they have a law that all skim milk from the creameries must be sterilized before going back to the farmers, lest the disease from one herd may be brought to another. They have a law providing that all the gummy substance taken out of the milk in the separator must be destroyed, and there is a heavy penalty for neglect to do so.

By Mr. Featherston :

Q. I suppose the milk is used for feeding calves ?

A. Yes, and they go on the line of greatest safety even where there is not complete knowledge. They go on the principle of keeping the stables light. While tuberculin may have a curative effect, experiments were tried here and in these cases the tuberculin treatment did not cure the disease.

By Mr. Edwards :

Q. At Guelph ?

A. At Guelph and at Ottawa: but a preventive and perhaps curative condition may be created and one means to that is abundance of sunlight. Physicians now are of opinion that tuberculosis is a house disease and not one of heredity,—not so much in the family as continued in the family through their surroundings; and want of light keeps the germs vital. In Scotland, where they are remarkably free from this disease, they have a practice of whitewashing the stables twice a year. Not only is whitewash a germicide but it reflects the sunlight. In Scotland this treatment has kept the disease away in large measure and if our farmers would whitewash their stables inside, for the sake of the looks, for the sake of the cattle and for the sake of the people, it would be a valuable aid to progress. I am glad to hear this subject dis-

ussed to-day showing how we can prevent this disease. It is very helpful and we should encourage our people to sterilize skim-milk from creameries and keep the stables light.

By Mr. Featherston :

Q. Mr. Douglas questioned with reference to animals living all along in the byre; have you noticed that practice?

A. Excepting this, that in some districts people keep shutters on their houses all the year. If you follow the lake you will find green shutters everywhere. I have a horror of cattle in dark stables. Let us know that abundance of sunlight is one of the most efficient allies in fighting this disease.

Mr. CARGILL—Mr. Chairman, being somewhat interested in the importation of cattle, I just rise to say that I have been delighted with the discussion which has taken place here to-day. I think valuable information has been given to the Committee, by Dr. McEachran, through these valuable reports. I also think Mr. Edwards is entitled to a great deal of credit for prosecuting the experiments he has at his own expense in connection with this herd of cattle. My own individual opinion is that tuberculosis has existed for a great many years in the animal race, probably to the same extent as in the human race. As population increases, I think this disease increases, not only in the human race but in the animal race, and the more cattle are imported into this country, if the disease exists in the old country—and I was glad to hear Prof. Robertson say the existence of the disease in Scotland, from which most of our Short-horn cattle are imported, is very slight; we find the best of our Short-horns come from there, and for that reason we importers, who are anxious to build up our herds, go to the best place. I don't, for the life of me, see how this government could take any other precautions to guarantee and secure the importer, than the arrangements which now exist to safeguard the importer. I understand the Minister of Agriculture here has put himself in communication with responsible professional men at the head of institutions in the old country who have recommended several gentlemen there, probably well known graduates of these institutions, to test these cattle. Now, I go over to Scotland a perfect stranger; I go around and examine the different herds for the purpose of making a selection and buying some cattle. I stipulate, of course, having fixed the price, that these cattle must stand the test or I won't take them. Now, relying on the honesty of these veterinarians over there, I have these cattle tested. They give me a certificate of good health, and I am at once assured that I am taking no risk at all. I buy these cattle in good faith; bring them over here; they are quarantined at Quebec for ninety days from the date of shipment in Scotland. There is a doctor there at the quarantine stables—I don't know what his duties are, but he is supposed to visit these cattle daily. As to whether he examines them as to whether they are diseased in any way, I don't know; but we bring these cattle home. We take it for granted they are perfectly sound and free from tuberculosis. Now, I might say that every one cannot go to the trouble which Mr. Edwards has taken, a millionaire lumberman—

Mr. EDWARDS—Oh, no.

Mr. CARGILL—A man with lots of money can afford to make these experiments. You and I, Mr. Chairman, as farmers, know we cannot go to the expense of making these experiments. There are men engaged in the business of importing who go over to Scotland and import half a dozen cattle for their own special purposes, for breeding purposes, and if they have no guarantee that tuberculin is a safe test, and that on the certificate of the veterinary over there they can import these half dozen cattle, I think it would mean the cessation of importing cattle into this country, because no man in this country would take these chances. And as having imported some cattle we are very particular. We have found some people there who had very desirable animals that we would particularly like to have, but after making arrangements as to price we proposed the test. Well in a few cases we have been

refused and of course we have been unable to buy the animals for the reason that they would not submit to the test, and from the demand that there is in the old country at the present time for this class of cattle they are perfectly independent. There, in fact, the most important breeders until very recently would not submit to the test at all.

Mr. RODDICK—Take your own veterinary surgeon with you.

Mr. CARGILL—His certificate would not pass there at all. There is a kind of contradiction of terms here. I was very much impressed with the remarks of Dr. Rutherford here and he is a practical man. That is all very good indeed. There seems to be a divergence of opinion in his views and some of the other views expressed here. However, I don't want this committee to go away with the impression that my criticisms mean that I am finding fault with the work done here to-day. It is not my intention; I think it is commendable, very commendable on the part of Mr. Edwards, and I do him credit for it. But all the importers are not in the same position.

The CHAIRMAN—It has gone abroad throughout the length and breadth of Ontario, and as I find that there are differences of opinion as to the test, I would like the opinion of those who have spoken upon this article which was published in the *Sun* on February 28, 1900. Because if these statements made here to-day are to go out it is only fair that this should be discussed.

The article reads:—

'It is interesting to note that there is among experts a reaction against the popular belief that there is danger of tuberculosis in cattle being communicated to man. Dr. Theobald Smith, of Harvard University, who has been experimenting in this matter for some years, declares that human and bovine tubercle bacilli are not identical. He has joined in a recommendation to the New York Assembly that hereafter the state only force the condemnation, quarantine and slaughter of such animals, as are found to be tuberculous by physical examination. It would appear, he says, that seldom or never does a person contract tuberculosis from meat or the milk of animals, and it is recommended that the state can better use its funds in educational work than in following the present policy of destroying all animals showing a reaction under the tuberculin test. There is evidence that where cattle tuberculosis is plentiful, human tuberculosis is so rare as to have no relation to it. These statements, though not positive enough to be conclusive, are yet reassuring, not only to cattle owners, but to the general public which was seriously alarmed at the danger suggested by the tuberculin test.'

Mr. RODDICK—I happen to know of the experiments of Dr. Smith and the man who makes that statement has read them incorrectly. I mean he has misunderstood the statement that Dr. Smith made. They were to the effect that the tubercle bacillus is changed or modified in its natural history by the surroundings. That you have a special human bacillus, that in the bovine bacillus differs in some marked respects in its nature, from the avian and other forms than those and it is found that the avian especially changed greatly. One of Dr. Smith's experiments was this: He took the tubercle bacillus and inclosed it in a gelatine capsul. He introduced these underneath the skin of a bird several of them of course, and he found these bacilli originally human in all their characteristics changed considerably in the body of the bird and become the ordinary avian bacillus and by putting human sputum in a glass case with a number of small fish, the fish took ill and became after a time tubercular and there they had changed and could stand the temperature of water or the low temperature of the fish itself. That is a sample of the change in the character of the tubercle bacillus due to its peculiar surroundings, and that is practically the same thing, and the bovine bacillus changes into the human as soon as it is in the human body.

DR. McEACHRAN RECALLED.

Most of you are aware that we have an experiment station in Outremont, where experiments are carried on in most diseases, particularly tuberculosis, and if you

refer to the blue books of the Department of Agriculture for the last few years, you will find a good many of these points brought out in these reports. Last year two healthy heifers were inoculated one with bovine tubercule in the right lung the other with human in the left. The former died from extensive generalized tuberculosis on the forty-second day, whereas the latter (inoculated with human tubercule) although she contracted the disease showed slight clinical evidence.

Five guinea pigs inoculated with bovine cultures died respectively on the 14th, 15th and 35th days.

Three in which human cultures were used died in 18, 23 and 36 days respectively, generalized tuberculosis being found in each case. In rabbits five inoculated with bovine cultures died in 36, 70, 74 and 90 days, one surviving three and a half months.

Of three inoculated with human tubercule one only contracted the disease dying in 52 days the other being alive after two months.

This goes to prove what Dr. Theobald Smith has been working at for some years, which I stated at the outset of my remarks this morning that the diseases are analogous but not identical, and I find that by bovine inoculation the results are far more violent than from human tubercule so that the point is clear enough.

While I am on my feet I would like to make some explanation with reference to a subject discussed here particularly by Mr. Cargill, that is the action of the Government with reference to cattle imported from Great Britain. For a great many years since we knew the use of tuberculin on cattle, all cattle that came to the quarantine of Canada, before leaving quarantine were subject to the tuberculin test. Three years ago a number of the Ontario breeders, waited on The Minister of Agriculture and begged him to adopt the system now in vogue, that is of taking a certificate from selected men that is men selected by myself and officers of the Board of Agriculture of Great Britain, and these are the men whose certificates we taken urging as a plea, that the testing in Canada was deterring people from importing into Ontario.

Dr. Rutherford said something about dishonest farmers and they are not all confined to Canada. I think you will find the Canadian farmer does not require that description so much as on the other side even in the country from which Dr. Rutherford and I come. It is now known that if tuberculin is injected into an animal subsequent tests are not to be relied on unless three months have elapsed.

I wish you would read these reports of the Outremont station, you will find them very interesting. In the reports of Dr. Adami and Dr. Higginson and others, you will find it stated that we cannot rely on the test unless three months have elapsed. Now we may employ the most reliable man in Great Britain to do this test whose testing in perfect, but if this honest farmer has pumped in a little tuberculine two or three days or 24 hours, before he arrives he gets no reaction but relies on his test and issues his certificate accordingly and he and all concerned are deceived.

Listen to this, this is from the report of 1897-8 in which I say:—

'The alarming prevalence of the disease in Britain, France, Germany and Denmark ought to be a warning to Canadian breeders to be extremely careful not to import tuberculous animals, and as they can rely on tuberculin, if honestly used, to discover the disease in nearly a hundred per cent of cases, there is no excuse for their neglecting the test. I feel it my duty, however, to advise them to study testing themselves and see that reliable tuberculin only is used, and that the test is made as directed in the official bulletins issued by the department, and on no account to buy an animal without a test having been made.

'Our experience at the Point Levis cattle quarantine of the results of testing by British veterinarians has been most unfortunate. In the case of one unfortunate importer, who obtained a veterinary chart and certificate of freedom from tuberculosis, the herd was tested again in Canada.'

Simply because I did not like the chart. The chart itself was condemnatory and I refused to accept it. Correspondence took place between us and I insisted on it being re-tested, and in the meantime a cow died from general tuberculosis.

By Mr. Cargill:

Q. Was the certificate defective?

A. It led me to be suspicious, at all events.

‘Eight weeks after, they were slaughtered, with the result that 13 out of the 14 were found to be tuberculous—one cow being so far advanced with the disease that she died in quarantine from it, and on post mortem examination exhibited very extensive general tuberculosis. It is impossible to estimate the damage and losses that might have followed if this herd had been released from quarantine and dispersed one here, one there, into perhaps a dozen or more healthy herds, or, in other words, it would be difficult to compute the saving to Canadian live stock interests by the testing at Point Levis of this one herd.

I need not take up your time further ; I refer you to these reports.

The United States government is taking this matter up. In 1897, when the arrangement was made between the Minister of Agriculture and the Secretary of Agriculture by which quarantines were removed between two countries, it was clearly understood that testing of animals for tuberculosis was to be carried on on the same lines in both countries. We Canadians tested all the cattle arriving from the British ports. The United States authorities did not ; some of our importers made a complaint that they could import by the United States without having their cattle tested again, and it was subsequently urged so strongly on the minister that he adopted the system now in vogue. Now, the Americans have come round, and I had a letter a short time ago in which the complaint was made that we are allowing cattle to land without testing them, and pointing out that they insist upon cattle being tested now at their quarantine, and asking us if we will not test our own cattle, that we will not allow any cattle destined for the United States to leave quarantine without being tested. A gentleman called upon me the other day who was on his way to Britain to buy cattle for the United States. I notified him that they would be tested before leaving the quarantine to which he raised no objections whatever.

By Mr. Cargill :

Q. In case of cattle being sold to the United States, don't they have to test them ?

A. If they are going from here they have to be tested.

Mr. CARGILL—In Canada here we test all our animals when they are sold.

Dr. McEACHRAN—I may say that this is not the only instance I could give you of a similar occurrence in that quarantine where cattle have arrived with charts declaring that they were free from tuberculosis ; we have had animals passed through that quarantine and die within a year from tuberculosis, and I think it is placing myself as the responsible officer in a position I should not be placed in, in obliging me to allow animals to pass through that quarantine without allowing me to use my knowledge to find out whether they are diseased or not. Whether I am doing so rightly or wrongly, I maintain that the sooner we go back to the original way of testing every animal in quarantine the better ; on these grounds, in the first place, mistakes may take place in testing, and if a man has a herd such as Mr. Edwards has, he cannot afford to take any chances whatever. We have proved conclusively that the test of tuberculin does no harm whatever, it does not cost the owner a cent to have it done, in quarantine, and why should he refuse to get this further guarantee that he is not introducing it into his herd. I am very glad that this subject came up, incidentally, but in view of the fact that it was a departmental order I did not think that I should bring it up, but I am very glad that you gentlemen have brought it up and I have had the chance given me of giving my views upon it. I have as I say published them here.

Now, gentlemen, there is another subject I would like to make a few remarks upon, the Prince Edward Island proposal. Three summers ago I visited it, professionally and I saw in that island a splendid opportunity to make an object lesson for Canada. I wrote a letter explaining my views and it was published in the *Island Farmer* and it subsequently led to the passage of that act by which cattle are not allowed to be taken on the island unless they have a chart showing that they have been tested within a recent date and found clear of tuberculosis. The penalties are

\$200 for any attempt to do this, and the animals are slaughtered. The act is an excellent one. I went further than that. I had statistics furnished me by reliable parties on the island and found that it would only cost \$25,000 to buy and destroy at once all the diseased animals on that island. Now, gentlemen, while I am an advocate of Bangs system, I think it is a pity for such a paltry sum as \$25,000 that we should delay such a desirable object longer. If we extirpate tuberculosis from the island, and have the door closed so that it can never be brought into it again, and remove all source for the spread of the disease, what is going to happen? In addition to the money derived from having the best breed of cattle, the land will be doubled, probably, in value immediately, you will produce cattle there which are guaranteed free from disease, and you will command the market of the world.

By Mr. Featherston:

Q. Have they that breed of cattle there now?

A. No; they will have to import them, that is why I don't see that Bang's system is good for the Island.

By Mr. Cargill:

Q. How long since tuberculosis was discovered to be a disease in cattle?

A. In the world generally.

Q. Yes.

A. Oh! from time immemorial.

Q. Then, supposing you do land cattle in Prince Edward Island, perfectly free from disease, with a guarantee, can you say that it would not originate there, as it did when it first sprung into existence?

A. You require the seed to produce the plant, and unless you produce tubercular bacilli you can no more produce tuberculosis than you can produce oats without seeds.

By Mr. Cochrane

Q. Where will you get the cattle?

A. Oh, there are plenty of healthy herds.

Q. But I understand you, professor, to say you do not consider a certificate given by a professor in Great Britain as proof positive.

A. That is quite right, but if we keep the animal three months in our quarantine then we can test them and rely upon it, after three months.

By Mr. Sproule

Q. Can you not make another breeding place on Manitoulin Island as well?

A. This will be an object lesson which will be of very great value to the country if it is carried out.

By Mr. Cochrane:

Q. Is it your opinion that there will never be a case of tuberculosis developed naturally in an animal in that island?

A. No; it will not develop in the animal, unless it is exposed to contagion; it may be from a consumptive person; but even supposing that an occasional animal would be diseased from contagion with a human being it will be a very simple matter to stamp it out when people understand it.

By Mr. Roddick:

Q. How long would it take to exterminate tuberculosis in the island if your suggestion is followed?

A. Probably a couple of years.

By Mr. Featherston :

Q. It is an excellent place for breeding cattle. The climate is something like England, but it has complete isolation and it is convenient to the ocean.

By Mr. Rutherford :

Q. We might compromise matters by having Mr. Edwards come down and buy these cattle where diseased cattle now exist.

By Mr. Edwards :

Q. Are there any conditions in Canada so near the conditions in Great Britain as the conditions in Prince Edward Island?

A. No.

Q. Is there any place so well situated as Great Britain for a breeding country in the world?

THE CONGRESS OF VETERINARIANS AT BADEN-BADEN.

Dr. McEACHRAN,— Gentlemen, if you will just bear with me for one moment there is another subject which will answer some questions put by Dr. Rutherford. In August last I attended a meeting of the congress at Baden-Baden at which some 600 or 800. veterinarians were present, having been sent there representing the different governments of the world, the whole world nearly being represented, so that it was a very high class meeting I assure you; and the conclusions which were come to by this Congress, are I think worth reading to you. I will merely read you the conclusions as to the prevention of tuberculosis among domestic animals:

“(1.) Prevention of tuberculosis in cattle is urgently needed.

“(2) The extinction of bovine tuberculosis on the part of the owners, (voluntary extinction) is practicable and should be universally aimed at. It demands the slaughter of dangerous tuberculous beasts as soon as possible, as well as careful protection of calves and the healthy animals from infection.

“The voluntary extinction of bovine tuberculosis should be encouraged by the State through the dissemination of correct views respecting the character of tuberculosis respecting the modes of infection, and the importance of tuberculin inoculation and be supported by State grants.

“The best means hitherto known for the prevention of tuberculosis among domestic animals is tuberculine.”

There you see is a very strong endorsement of tuberculine.

“Tuberculine should only be supplied under State control, in any case it should be given to veterinary surgeons alone.”

That I fully endorse; it should be dealt with just as poison is and given only to registered men.

By Mr. Bell (Pictou) :

Q. To experienced veterinarians?

A. Yes.

“(3) A state prevention of bovine tuberculosis is thoroughly to be recommended.

“If it is applied with a certain caution it can be carried out and will hinder the further increase of the disease and will gradually stop it.

“The prevention requires:—

“(a) The obligation of the veterinary surgeon to give the legal notice of every case of proved tuberculosis in the exercise of his practice.

“(b) The quickest possible slaughter of dangerously tuberculous animals (particularly those animals which are affected with mummite, tuberculosis of the matrix and of the intestines, as well as pulmonary tuberculosis) compensation being granted

by the State, and the prohibition of the return of buttermilk from the co-operative dairies until it has been sterilized."

Now, gentlemen, there is the whole thing in a nutshell, and if you will take these suggestions and study them you will find they have been endorsed by most of these scientific gentlemen present at the congress.

By Mr. McNeil:

Q. Am I correct in supposing that you say the report which you read from the newspaper and which has been very largely circulated throughout Canada, to the effect that human beings are not likely to be affected by tuberculosis from cattle is quite misleading.

Mr. RODDICK.—It is quite misleading. The result of the experiment was quite the opposite.

The CHAIRMAN.—That is the reason it was read, because it has spread all over the province of Ontario and for that reason I asked these gentlemen to come here and give their experience.

Having examined the preceding transcript of evidence of the 20th June, on Tuberculosis, I find my own statements therein, correct.

DUNCAN McEACHRAN, *F.R.C.V.S.*

Chief Veterinary Inspector, for the Dominion of Canada.

The first of these is the fact that the United States has been a free country since 1776. The second is the fact that the United States has been a free country since 1776. The third is the fact that the United States has been a free country since 1776.

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