

MAINE STATE LEGISLATURE

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Public Documents of Maine:

BEING THE

ANNUAL REPORTS

OF THE VARIOUS

Public Officers and Institutions

FOR THE YEAR

1896.

VOLUME II.

AUGUSTA
KENNEBEC JOURNAL PRINT
1897

REPORT OF COMMISSIONERS
ON
CONTAGIOUS DISEASES
OF
ANIMALS

Under the Law of 1887, Chapter 138 of Public
Laws of Maine.

JOHN M. DEERING, SACO, ME., *President.*

F. O. BEAL, BANGOR, ME., *Treasurer.*

GEO. H. BAILEY, DEERING, ME., *State Veterinarian.*

AUGUSTA:
BURLEIGH & FLYNT, PRINTERS TO THE STATE
1896.

REPORT.

To His Excellency the Governor of Maine:

We present our annual report for the year closing December 31, 1895, together with an account of our expenditures and other proceedings under provisions of the law of 1887, Chapter 177, relating to contagious diseases in this State, and as amended in 1892, Chapter 194.

January 1st. The first inspection of the year was ordered at Cape Elizabeth, and a bad case of "glanders and farcy" discovered and destroyed. Appraisal, \$50.

January 2nd. Gorham. A grade Jersey cow was found affected with tuberculosis and destroyed. Appraisal \$35.

January 3rd. Sidney. A grade Jersey heifer was found affected with tuberculosis, Appraisal \$20.

January 8th. Inspection of horses and cattle was ordered at Houlton, but no disease discovered.

January 11th. Portland. A case of glanders was discovered and destroyed. Appraisal, \$50.

January 12th. Skowhegan. A case of glanders was reported, which proved to be catarrh.

January 14th. Inspection of cattle was ordered at Solon and Winthrop, but no cases discovered.

January 15. Augusta. A case of glanders was discovered, but no appraisal was allowed.

January 16th. Saco. A Jersey cow was discovered affected with tuberculosis. Appraisal, \$30.

January 17th. Cape Elizabeth. A case of glanders was discovered and destroyed. Appraisal, \$40.

January 18th. Scarborough. A case of glanders was discovered and destroyed. Appraisal, \$50.

January 19th. Carmel. Inspection of cattle was ordered, but no contagious disease discovered.

January 20th. Duck Pond. A tuberculous ox was discovered and destroyed. Appraisal, \$50.

January 21st. Lisbon. An old Jersey cow was found affected with tuberculosis. Appraisal, \$16.

January 22d. Portland. A case of glanders was discovered and destroyed. Appraisal, \$50.

January 23d. Auburn. Inspection of cattle was ordered, but no contagious disease found.

January 28th. Benedicta. Tuberculosis was reported, but none discovered in Aroostook county.

February 1st. Cape Elizabeth. A case of glanders was discovered and destroyed. Appraisal, \$50.

Inspection was ordered at Newport, but no contagious disease discovered.

February 2d. Winthrop. A case of glanders was reported, but none found.

February 3d. Inspection of cattle was ordered at Guilford, but no contagious disease discovered.

February 4th. Stroudwater. A case of glanders was reported, which proved to be chronic catarrh.

February 5th. Bar Mills. A case of glanders was discovered and destroyed. Appraisal, \$35.

February 5th. Inspection of cattle was ordered at Guilford, but no disease discovered.

February 9th. Readfield. A case of glanders was discovered and destroyed. Appraisal, \$50.

February 12th. Inspection of cattle was ordered at Bowdoin, but no disease discovered.

February 13th. Inspection of cattle was ordered at Skowhegan, but no disease discovered.

February 14th. East Livermore. A case of glanders was discovered and destroyed. Appraisal, \$50.

February 16th. Farmington Falls. A Jersey cow and heifer were found affected with tuberculosis and destroyed. Appraisal, \$75.

February 18th. Inspection of cattle was ordered at Oakland, but no disease discovered.

February 19th. Inspection of cattle was ordered at Sidney, but no disease discovered.

February 20th. Bucksport. A case of tuberculosis was discovered in an ox. Appraisal, \$50.

February 21st. Inspection of cattle was ordered at Auburn, but no contagious disease discovered.

February 22nd. Bangor. A Jersey cow was found affected with tuberculosis. Appraisal \$50.

February 22. Inspection of cattle was ordered at Milo, but no disease discovered.

February 23rd. Bucksport. Contagious disease was reported among cattle, but none discovered.

Buxton. A high grade Jersey cow was found affected with tuberculosis. Appraisal, \$50.

February 24th. Inspection of cattle was ordered at Foxcroft, but no disease discovered.

February 26th. Inspection of cattle was ordered at Blue Hill, but no disease discovered.

February 27th. Manchester. A case of glanders was reported, but none discovered.

February 28th. Maquoit. A case of glanders was reported, but none discovered.

March 1st. Inspection of stock was ordered in Aroostook county, but no disease discovered.

March 5th. Bucksport. A case of glanders was discovered and destroyed. Appraisal, \$25.

March 8th. Inspection of cattle was ordered at Olamon, but no disease discovered.

March 9th. Scarboro. A case of glanders was reported, but none found to exist.

March 10th. Portland. A case of glanders was discovered and destroyed. Appraisal, \$50.

March 11th. Inspection of cattle was ordered at Stroudwater, but no disease discovered.

March 12th. Inspection of cattle was ordered at Vassalboro, but no disease discovered.

March 14th. Portland. A case of glanders was discovered and destroyed. Appraisal, \$50.

March 15th. Inspection of cattle was ordered at Winthrop, but no disease discovered.

March 15th. Readfield. A case of farcy was discovered and destroyed. Appraisal, \$37.50.

March 16th. North Wayne. A case of glanders was reported, which proved to be catarrh.

March 18th. Tuberculosis was reported in a herd of cattle at Farmington, and an ox found affected with chronic pneumonia.

March 19th. South Sanford. A case of tuberculosis was reported, but none discovered, but a case of glanders was found and destroyed. Appraisal, \$10.

March 20th. Inspection of cattle was ordered at Dexter, but no disease discovered.

March 23d. West Kennebunk. A case of tuberculosis was reported, but none discovered.

March 25th. Houlton. A herd of cattle was reported as diseased, which proved unfounded.

March 26th. Inspection of cattle was ordered at Winthrop, but no disease discovered.

March 27th. Fort Fairfield. A case of glanders was discovered and

March 28th. Skowhegan. Inspection of cattle was ordered, but no disease discovered.

March 29th. Machias. Inspection of stock was ordered, but no disease discovered.

Bucksport. A case of tuberculosis was reported which proved to be emphysema.

March 30th. Inspection of cattle was ordered at Brewer, but none discovered.

April 1st. Sedgwick. Inspection of cattle was ordered, but no disease discovered.

April 2nd. Portland. A case of glanders was discovered and destroyed. Appraisal \$50.

April 3rd. Ellsworth. A case of glanders was reported, but none discovered.

April 4th. Inspection of cattle was ordered at Vassalboro, but no disease discovered.

Canton. An outbreak of anthrax was discovered in a herd of cattle and three cows, two heifers and two calves were found affected and destroyed. Appraisal of seven head, \$120.

April 5th. Bangor. A case of glanders was discovered and destroyed. Appraisal, \$50.

April 6th. Belfast. A case of tuberculosis was reported, but none found to exist.

Wilton. A grade Jersey cow was found affected with tuberculosis. Appraisal, \$27.

April 10th. Buck's Mills. A case of tuberculosis was discovered and destroyed. Appraisal, \$50.

April 12th. Inspection of cattle was ordered at Sangerville, but no disease discovered.

April 13th. Falmouth. A case of tuberculosis was discovered in a Jersey cow. Appraisal, \$30.

April 14th. Inspection of cattle was ordered at Waterville and Paris, but none discovered.

April 15th. Inspection of cattle was ordered at Wales, but no disease was discovered.

April 16th. Lisbon. Inspection was ordered in a herd of cattle, but no disease discovered.

April 17th. Auburn. A case of tuberculosis was discovered in a Jersey cow. Appraisal, \$50.

April 19th. Saco. A case of tuberculosis was discovered in a Jersey cow. Appraisal, \$40.

April 20th. Gorham. A case of glanders was reported which proved to be catarrh.

April 21st. Inspection was ordered in a herd of cattle at Liberty, but no disease discovered.

April 22d. At Sullivan Harbor a case of glanders was reported, but none was found, but a case of glanders was discovered at Bar Harbor, which was destroyed. Appraisal, \$50.

April 23d. Augusta. Inspection of cattle was ordered, but no contagious disease discovered.

April 24th. Harrison. Glanders was reported, but none was found to exist.

April 25th. Inspection of cattle was ordered at Norway, but none found to exist.

Minot Corner. A grade cow was found affected with

April 26th. Inspection of cattle ordered at Winthrop, but no contagious disease found.

April 27th. Auburn. A case of farcy was discovered and destroyed. Appraisal, \$50.

Hampden. A case of tuberculosis was discovered and destroyed. Appraisal, \$30.

April 28th. Inspection of cattle was ordered at Dexter, but no contagious disease found.

Keen's Mills. A case of tuberculosis was discovered in a grade cow. Appraisal, \$30.

May 1st. Glanders was reported at Greenville, but no cases were found.

May 2d. Bath. Contagious disease was reported in a herd of cattle, but none discovered.

May 3d. Falmouth. A case of tuberculosis was reported, but none discovered.

May 4th. Cumberland Center. A case of tuberculosis was reported, which proved to be emphysema.

May 6th. Inspection of cattle was ordered at North Pownal, but no disease discovered.

May 7th. Portland. A case of farcy was discovered and destroyed. Appraisal, \$50.

May 8th. Inspection of cattle was ordered at Dresden, but no contagious disease discovered.

May 9th. Inspection of cattle was ordered at Bowdoinham, but no disease discovered.

Inspection of cattle was ordered at Richmond, but no disease discovered.

May 10th. Bangor. Glanders was reported, which proved to be chronic catarrh.

May 11th. Inspection of cattle was ordered at Winthrop and Readfield, but no contagious disease was discovered.

May 15th. Randolph. A case of tuberculosis was discovered in an old Jersey cow. Appraisal, \$20.

May 16th. Harrison. Two western horses were found affected with glanders and appraised at \$100.

May 17th. Guilford. A cow was discovered affected with tuberculosis. Appraisal, \$30.

Inspection was ordered of a large herd of cows at Farmington, but none were found diseased.

May 18th. Molunkus. A case of tuberculosis was discovered and destroyed. Appraisal, \$40.

May 20th. Cape Elizabeth. The entire "Rigby Farm" herd were tested with tuberculin at request of the Portland Board of Health, and were found to be free from disease.

May 21st. Yarmouthville. A case of tuberculosis was reported, but none discovered.

May 23rd. Cumberland Center. A cow was reported as diseased, which proved to be emphysema.

May 25th. Windsor. Inspection of cattle was ordered, but none found diseased.

May 28th. Portland. A case of glanders was discovered and destroyed. Appraisal, \$50.

May 30th. Portland. A case of glanders was discovered and destroyed. Appraisal, \$50.

May 31st. Inspection of cattle was ordered at Hampden, but no contagious disease found.

June 1st. Lincoln. A case of glanders was discovered, but no appraisal allowed.

June 4th. Waldoboro and Nobleboro. Two herds of cattle were inspected, but no contagious disease discovered.

June 6th. A case of tuberculosis was reported at Gray, which proved chronic catarrh.

Corinth. Inspection of cattle was ordered, but no disease discovered.

June 7th. South Dover. A herd of cattle were inspected, but none found diseased.

June 8th. Belfast. A case of tuberculosis was reported, which proved to be emphysema.

June 10th. Deering. Three herd of cattle were inspected, but none found to be diseased.

June 11th. Westport. A case of tuberculosis was reported, but was not found to exist.

June 13th. Camden. A case of glanders was reported, which proved

June 15th. Eliot. A herd of cattle were inspected, but no contagious disease discovered.

June 17th. Yarmouthville. A case of glanders was reported, which proved no case.

June 20th. South Portland. A case of farcy was discovered and destroyed. Appraisal, \$50.

June 21st. West Falmouth. Three herds of cattle were inspected, but none found diseased.

June 22d. Pleasantdale. A case of glanders was reported, but none discovered.

June 24th. Duck Pond. A case of glanders was reported, but none discovered.

June 25th. Deering. Two herds of cattle were inspected, but none found diseased.

June 28th. Bangor. A case of tuberculosis was discovered and destroyed. Appraisal, \$50.

June 29th. At Sabbath Day Lake, a case of tuberculosis was discovered. Appraisal, \$40.

July 1st. Inspection was ordered of three herds of cattle at Duck Pond, but no disease found.

July 2d. Casco. A case of tuberculosis was reported, which proved unfounded.

July 3d. North Bucksport. A case of glanders was reported, but none found to exist.

July 5th. Inspection of two herds of cattle was ordered at West Cumberland, but no contagious disease was found.

July 6th. Lewiston. A case of tuberculosis was reported, but none was found.

July 8th. Inspection was ordered in a herd of cattle at Cape Elizabeth, but no disease was discovered.

July 9th. Auburn. A case of tuberculosis was discovered and destroyed. Appraisal, \$30.

July 15th. South Poland. Inspected the home herd at Poland Springs Hotel, and nine other herds that furnish milk and cream, and found no disease among them.

July 16th. North Bangor. A case of glanders was reported, but no case found.

July 18th. South Portland. A case of glanders was reported, but none discovered.

July 19th. Pleasantdale. A case of glanders was reported, which proved to be chronic catarrh.

July 22nd. West Cumberland. Inspected a herd of cattle, but found no contagious disease.

July 25th. Bangor. A case of glanders was discovered. Appraisal, \$50.

July 26th. Hermon. A herd of cattle were inspected, but no disease discovered.

July 27th. Deering. A case of glanders was discovered and destroyed. Appraisal, \$50.

July 29th. Bath. A case of glanders was reported, which proved to be chronic catarrh.

July 30th. A herd of cattle were inspected at Skowhegan, but no contagious disease discovered.

July 31st. Old Orchard. A case of glanders was reported, but no case found.

August 2nd. Westbrook. A herd of cattle were tested, but no contagious disease discovered.

August 5th. Bangor. A bad case of glanders was discovered and destroyed. Appraisal, \$50.

August 6th. Richmond Corner. A case of glanders was reported, but none found.

August 12th. Knightville. A case of farcy was discovered and destroyed. Appraisal, \$50.

August 13th. North Vienna. A case of tuberculosis was reported, but none was discovered.

August 14th and 15th. Embden. A herd of cattle were inspected, but no contagious disease discovered.

August 16th. West Gardiner. A case of tuberculosis was reported, but none was found.

August 17th. Albion. A case of tuberculosis was discovered in a Jersey cow. Appraisal, \$27.

August 19th and 20th. New Sharon. A case of tuberculosis was discovered. Appraisal, \$25.

August 24th. Guilford. Two cases of tuberculosis were reported, but none discovered.

August 26th. Cape Elizabeth. A case of glanders was reported, but none found.

August 27th. Intervale. A case of tuberculosis in an old Jersey cow was discovered and destroyed. Appraisal, \$20.

August 28th. Auburn. A case of tuberculosis was discovered. Appraisal, \$40.

September 2d. West Pownal. A case of glanders was discovered. Appraisal, \$50.

September 3d. Tuberculosis was reported in a dairy herd of Jerseys at Intervale, and five cows found affected. Appraisal, \$175.

September 4th. Farmington. A case of glanders was discovered and destroyed. Appraisal, \$40.

September 7th. Winterport. A herd of cattle were inspected, but no contagious disease found.

September 9th. Ellsworth. Tuberculosis was reported in a herd of cattle, but none discovered.

September 13th. West Gorham. A herd of cattle were inspected, but no disease discovered.

September 14th. Portland. A case of glanders was reported, which proved to be catarrh.

September 15th. Kenduskeag. A case of glanders was discovered and destroyed. Appraisal, \$50.

September 17th. Industry. A herd of cattle were inspected, but no contagious disease discovered.

September 18th. Hallowell. A case of glanders was discovered and destroyed. Appraisal, \$50.

September 20th. Glenburn. A herd of cattle were inspected, but no disease discovered.

September 21st. Porter. A Jersey cow and cosset sheep were found affected with tuberculosis. Appraisal, \$31.

September 22d. Bangor. A case of glanders was discovered and destroyed. Appraisal, \$50.

September 24th. Farmington. A case of glanders was reported, which proved to be chronic catarrh.

September 28th. East Otisfield. A case of tuberculosis was discovered in a grade Jersey cow. Appraisal, \$30.

October 1st. Bowdoinham. A case of glanders was reported, but none was found.

October 2nd. Biddeford. Inspection of a herd of cattle was ordered by Board of Health, but no disease was found to exist.

October 3rd. Ellsworth. A case of glanders was discovered and destroyed. Appraisal, \$50.

October 4th. Biddeford. Inspection of cattle was ordered, but no contagious disease discovered.

October 5th. Newcastle. Contagious disease was reported among cattle, but none found.

October 7th. Scarborough. A case of glanders was reported, but none discovered.

October 8th. Windham Center. A case of glanders was reported, which proved to be catarrh.

October 15th. Danville Junction. A case of tuberculosis was discovered and condemned. Appraisal, \$30.

October 16th. Mackworth's Island. Inspection of cattle was ordered, but no disease found.

October 17th. Intervale. A herd of Jerseys were found affected with tuberculosis, and three destroyed. Appraisal, \$100.

October 18th. Penobscot. A case of glanders was discovered and destroyed. Appraisal, \$50.

North Edgecomb. A case of tuberculosis was discovered and destroyed. Appraisal, \$25.

October 19th. Paris Hill. A case of tuberculosis was discovered in an old Jersey cow. Appraisal, \$25.

October 20th. Windham. Inspection of cattle was ordered, but no contagious disease found.

October 21st. A case of tuberculosis was discovered and destroyed. Appraisal, \$50.

October 23d. Corinna. A herd of cattle was inspected, but no contagious disease found.

October 24th. Augusta. A case of glanders was reported, but no case discovered.

October 25th. New Gloucester. Tuberculosis was reported in a herd of cattle, but none discovered.

October 26th. Oxford. Inspection was ordered in a herd of cattle, but no disease found.

November 1st. Augusta. A case of glanders was discovered and destroyed. Appraisal, \$50.

November 2d. Sabattus. A case of glanders was reported, but none discovered.

November 4th. North Paris. Inspected a herd of cows that had been driven from Vermont for sale; no disease was discovered.

Glenburn. A case of glanders was reported, which proved to be catarrh.

November 5th. Saco. A herd of cattle were inspected, and a grade Jersey cow found affected with tuberculosis. Appraisal, \$30.

November 6th. South Norridgewock. A case of glanders was reported, but none discovered.

November 7th and 8th. Dexter and Palmyra. Cattle were inspected and a case of tuberculosis was discovered and destroyed. Appraisal, \$30.

November 9th. Gilbertville. Contagious disease was reported among cattle, but none discovered.

November 14th. Kennebunk. A case of tuberculosis was discovered and destroyed. Appraisal, \$30.

November 19th. Portland. A case of glanders was discovered and destroyed. Appraisal, \$50.

November 20th. North Waterboro. A case of glanders was reported, but none discovered.

November 28th. Skowhegan. A case of glanders was reported, but none discovered.

November 29th. Dexter. Inspection of cattle was ordered, but no disease discovered.

November 30th. Main Stream. A case of tuberculosis was discovered in a Jersey cow which was condemned. Appraisal, \$30.

December 2d. Portland. A case of glanders was discovered and destroyed. Appraisal, \$50.

December 3d. Winnegance. A case of glanders was discovered and destroyed. Appraisal, \$20.

December 4th. Auburn. A case of glanders was reported, but none discovered.

December 7th. Lewiston. Two cases of tuberculosis were discovered in a private herd of grade Jerseys and both destroyed. Appraisal, \$100.

December 8th. Albany. A case of tuberculosis was discovered and destroyed. Appraisal, \$30.

December 9th. West Farmington. Inspection of cattle was ordered, but no contagious disease found.

December 10th. Gorham. A case of glanders was reported, but none discovered.

December 11th. Monroe. A case of tuberculosis was discovered and destroyed. Appraisal, \$28.

December 14th. Farmington. A case of tuberculosis was reported and destroyed. Appraisal, \$35.

December 16th. Knightville. A case of glanders was discovered and destroyed. Appraisal, \$50.

December 17th. New Gloucester. Inspection was ordered of a herd of cattle, and a Guernsey cow found affected and destroyed. Appraisal, \$35.

December 20th. Leeds Center. A case of tuberculosis was discovered in an old Jersey cow. Appraisal, \$25.

December 21st. Readfield. Inspection of cattle was ordered, but no contagious disease discovered.

December 23rd. South West Bend. A case of tuberculosis was discovered and destroyed. Appraisal, \$20.

December 24th. West Gloucester. A herd of thirty-one high grade Jersey and Guernsey cows were tested and seventeen found affected and destroyed. Appraisal, \$448.

December 26th. East Denmark. Inspection was ordered in a herd of cattle, but no contagious disease found.

December 27th. Lewiston. A case of tuberculosis was reported, but no case discovered.

December 30th. East Hiram. A case of tuberculosis was reported, but proved to be emphysema.

A summary of the business of the year will show that the Commissioners made two hundred and twenty-eight inspections of horses and cattle during the year just closed, scattered all over the State from Kittery to the Aroostook, and from the mountains to the sea. This number of inspections is largely in excess of any previous year, and while the total number of animals condemned is approximately the same, the demands upon the board for inspections has increased out of all proportion to the annual amount of appropriation heretofore made to carry on the work and which must be increased if the same vigilance and control of the contagious diseases of horses and cattle in this State is to be exercised in the future as in the past.

Forty-three head of horses were condemned and destroyed at an appraisal of \$1,927.50, and seventy-nine head of cattle were also condemned and destroyed at an appraisal of \$2,459, the total amount of appraisals for the year being \$4,386.

The number of horses found to be affected with glanders is twenty-one less than in 1894, while the number of cattle affected with tuberculosis is twenty-three more, which represents almost the exact number found in the two herds at New Gloucester, which were discovered towards the very latter

part of the year, and where in each instance the disease could be clearly traced to the introduction of new animals from herds in which diseased animals had previously been found and destroyed by the Cattle Commissioners.

Our quarantine against Massachusetts is still in force and was supplemented on November 12th, 1895, by another much more sweeping in its provisions, and which had become absolutely necessary, not only to provide against cattle from Massachusetts coming here in violation of our quarantine regulations, (which had occurred in several instances,) but also to prevent whole droves and car loads of cattle coming into Maine from other infected states, without any permit, or without having been submitted to tuberculin tests, which latter requirement has since been adopted and agreed to by all the boards of Cattle Commissioners of the New England states, in convention at Providence, R. I., November 20 to 23, 1895.

The interstate regulation then agreed upon, provides: All cattle transported from one state to another, shall have first been tested with tuberculin by some graduate of veterinary surgery and medicine, and upon the receipt of such proof sheets as are satisfactory to the state boards, a permit is granted to the owner and no delay is then caused in shipping such animals to their destination. The permit thus granted accompanies the way-bill from the point of shipment, and unless such a permit is furnished to the railroad or steamboat agent, no cattle will in future be accepted for transportation. It will be seen by reference to section 7, chapter 177, of the Maine law, that such transportation companies are held responsible for all such shipments. Section seven is as follows:

SECT. 7. That no person or persons owning or operating any railroad, nor the owner or owners, or masters, of any steam, sailing, or other vessels, within the state, shall receive for transportation, or transport from one part of the state to another part of the state, or to bring from any other state or

foreign country any animals affected with any of the diseases named in section two of this act, or that have been exposed to such diseases, especially the disease known as tuberculosis, knowing such animals to be affected, or to have been so exposed nor shall any person or persons, company or corporation, deliver for such transportation to any railroad company, or to the master or owner of any vessel, any animals, knowing them to be affected with, or to have been exposed to, any of said diseases; nor shall any person or persons, company or corporation, drive on foot, or transport in private conveyance, from one part of the state to another part of the state, any animal, knowing the same to be affected with, or to have been exposed to, any of said diseases. Any person or persons violating the provisions of this section, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by fine not exceeding the sum of two hundred dollars, or by imprisonment not exceeding six months, or by both fine and imprisonment.

As regards our first quarantine against Massachusetts, a few shipments of milch cows have been made from that state, that owing to some carelessness or lack of proper instructions upon the part of some owner or agent, have arrived in Maine without such permit, have been received by the Maine Central road only to be promptly side-tracked at the quarantine stations at Westbrook Junction, to be held at owners' expense until it could be proved they were not diseased, and afterwards forwarded to their destination.

The case referred to in our biennial report of 1894, where three cows came from Beverly, Mass., without any permit, and were tested by our board, and one of them found to be badly diseased, was destroyed without compensation to the owner has found its counterpart during the past year in another cow shipped July 2d from Lawrence, Mass., en route for Ellsworth, Me. No permit accompanied this case, and she was held in quarantine until the owner could be notified, and after he had been found and absolutely refused to comply

with our State law, the cow was tested with tuberculin and proved to be diseased, and on July 30th she was destroyed, the post mortem disclosing an advanced stage of pulmonary tuberculosis.

We are constantly in receipt of letters asking for information in regard to bringing cattle into Maine, (chiefly for breeding purposes) and it will be necessary in the future to have all such cattle properly tested with tuberculin and the proof of such tests furnished some member of our board, *when, if approved*, a permit will be granted to the owner, which will insure his cattle not only to be accepted by the transportation agent of any company whose terminus is Maine, but will ensure no detention while en route to their destination. A single case in point will fully illustrate the importance of such requirement.

A gentleman owing a prominent herd of thoroughbred cattle in this State, recently selected six head of high priced cows in Connecticut to increase his herd, and applied for information as to how he could have them shipped to Maine. He was told that the only way he could obtain a permit was to have the cows tested with tuberculin before concluding his purchase, and if they *stood the test*, such a permit would be granted. But, says he, suppose the owner refuses to have them tested? We replied, then don't buy them. The result was that the cows were submitted to the test, *and every one of them reacted*, thus saving the gentleman from buying diseased stock, and the State receiving any more diseased cattle.

In regard to our late quarantine of cattle from any point of the compass, it had come to the knowledge of our board that several droves and car loads of cheap cows were being brought into Maine along the line of the Grand Trunk Railway from New Hampshire and Vermont, and were being distributed and sold among the farmers along the line, many of whom had sold off from their herds much more desirable animals such as our drovers are selecting every week for the Brighton market, and many of which command a fancy price in Boston, owing

to the now undisputed fact, that Maine cows are practically free from tuberculosis, and that we have the minimum amount of any New England state. This being conceded, our drovers are seeking out and purchasing a class of cows, of which the supply will soon be unequal to the demand, as they select only the best, and while discarding cows that are too old or too young, or farrow, they are able to offer the farmer a few dollars extra price for his best milch cows, often leaving behind two that cannot supply the amount of milk or butter of the one sold, leaving them two *to care for* and two *to feed*, to obtain the equal product of the one let go. If the cows that were being brought into Maine at a lower price compared favorably with those being sold out of our State, there would not have been so much objection to them, if *tested before admitted*, but they were as a rule old cows that were being discarded from farms in other states and that would compare fairly with the cheap cows that were being brought into Maine by the car load previous to our first quarantine against Massachusetts. Coming down to tuberculin tests, which is now almost universally adopted by all veterinarians and state officials as the best and safest diagnostic agent yet discovered, we have had in this State, as in all others, plenty of sceptics and opponents who are always ready to condemn in advance any new departure from old customs, only to have the conviction forced upon them that it is an agent at once reliable and far more to be depended upon than any physical examination by our most experienced men. Of course, we have always had to depend upon physical examinations before tuberculin was discovered, and such an examination has not lost its usefulness now in many cases where the disease has reached a fair development, but as it has always proved that appearances in this disease are of the most unreliable nature since tuberculin has supplied so well a long felt want, it only resolves that we can safely rely upon such tests, if the tuberculin can be depended upon and the tests are made by competent men. The veterinarians in this State who are making

tests every week for drovers who buy for Brighton, who are largely members of the Maine State Veterinary Association have recently adopted a resolution that they will for the future use a uniform brand of tuberculin in the making of such tests. The popularity of tuberculin tests had forced upon the market the product of rival chemists and importers, until many different kinds were being purchased and employed in this State, the inducement being furnished in many cases by the price at which it could be obtained, and without condemning any of the brands that have heretofore been used. The association have now agreed upon Koch's, as this has so far furnished uniform reliable results, almost equally with that furnished by the "Bureau of Animal Industry" at Washington. The Government tuberculin is never sold to veterinarians and is only furnished to boards of cattle commissioners of the several states free, upon conditions binding them not to allow it to be used in private practice, and only for official work.

Early last spring our Board had several consultations with the Board of Health of the City of Portland in regard to the inspection of all herds that supplied Portland with milk; not that tuberculosis was known to exist in any such herd, but the Board of Health were apprehensive that such might be the case. As early as last May our Board entered upon the work of officially inspecting all the herds that were fairly accessible and within a reasonable distance of Portland, using tuberculin tests wherever there were any cases that seemed to require it, or where the normal temperature of the animals were above the usual elevation, and after a careful inspection of many hundreds of cows that supply the city of Portland with milk, we have failed to discover a single case of tuberculosis in any one of them, although we have found several herds kept in such unclean tie-ups and under such unsanitary conditions, as clearly call for prompt action upon the Boards of Health of several towns in Cumberland and other counties, that should compel the owners and attendants to see that the animals under their charge should be provided with better

ventilation and more sunshine, and not be allowed to wallow in their own excrement throughout the long confinement of the winter months.

As a rule, however, we have found the dairy herds inspected by us to be well nourished and provided with comfortable quarters, and it is a most remarkable fact that among the large number we have examined, that not a single case of tuberculosis or other contagious disease should have been found among all the animals that furnish the most important food product that enters into the daily rations of every man, woman and child in the community.

The cases of typhoid fever that were reported to our Board by the health officers of Biddeford last October, and that were at first supposed to be due to the use of diseased milk, led to the inspection and *testing* of every herd that had supplied the patients affected, with their milk supply, proved that the animals in such herds were entirely free from all suspicion; while the examination developed the fact that the whole trouble resulted from washing the milk cans with impure water drawn from wells that were clearly contaminated with the surface drainage, coming from barn yards and sink spouts in close proximity to the water supply.

A case in point that has been attended with much more serious results, has occurred in Connecticut, and which has been reported by the Secretary of the Board of Health of that State. Dr. Lindsey reports:

“The most severe epidemic of typhoid fever of which there is any record in Connecticut, is now in progress in Stamford. Thus far more than 200 cases have occurred in a town of about 18,000 inhabitants. Careful investigation of its origin is being made and in due time will be published. The evidence at present seems conclusive that the disease was spread from infected milk, and that the milk become infected by washing the milk cans with water from a highly polluted well. How the special infection got into the well has not been definitely determined, but the close proximity of two privy vaults is very suggestive.

There could not be a more convincing illustration of the importance of some authoritative supervision of the ways and methods of milk production for public use. So long ago as 1881, fifty typhoid epidemics from infected milk had been traced in England, and now all English dairies are subject to the supervision and control, in a sanitary sense, of health officials."

TRACED TO A MILKMAN.

Used Water that Caused a Typhoid Fever Epidemic.

STAMFORD, CONN., June 4.—The typhoid fever scare of a month or more since has taken on a sensational phase in the arrest this evening of Henry J. Blackham, a milkman. A great deal of feeling is expressed against Blackham since the local and state board of health announced they traced the origin of the epidemic to his dairy, where his milk cans were washed in water drawn from an infected well. A minister suggested that Blackham should be tarred and feathered and ridden out of town on a rail.

The warrant served on Blackham charges manslaughter in causing the death of John F. King, a victim of the fever epidemic. The complaint is that Blackham recklessly used the water from a well containing germs of typhoid fever to wash cans and that he sold milk in which poisonous substances were contained in solution.

Blackham is in jail and will doubtless remain there since it will be extremely difficult for him to secure a bondsman in or about Stamford. He takes his arrest coolly.

During the epidemic there were 400 cases of fever and 21 persons died.

The cases of anthrax already referred to among a herd of cattle at Canton, Maine, which destroyed seven head of young cattle, were the first to our knowledge to have occurred in Maine, and were supposed to have become effected through the purchase of grain fed the cattle that came to Canton in a Western Wabash car, in which the grain had come in con-

tact with the litter and dropping of a previous load of cattle, which litter had not been removed from the car or otherwise disinfected. Anthrax among cattle has heretofore been prevalent in the West, and one of the most easily disseminated of all the contagious diseases among cattle. The recent outbreak in New Jersey, was supposed to have its origin from a load of imported hides from Russia into Delaware, the refuse from the tanneries being used as a fertilizer. Cattle were thrown into the Delaware bay and carried by the tides to the New Jersey shores, where the disease first made its appearance, near the marshes and low lands covered by tide water. Every precaution has been taken to prevent a recurrence of the disease, the premises thoroughly disinfected and we do not anticipate any other cases in this State. Of the forty-three head of horses condemned for glanders and farcy the past year, but five of them were bred in Maine, the large majority coming from the West, while the Provinces contributed not a few of them. Western horses have been so cheap recently, that an unusual number of them have been distributed throughout the State although the number destroyed is twenty, one less than in 1894. In Massachusetts "during the year the Board has received notification of two hundred and fifty of such suspected cases; of these, two hundred and six have been condemned and killed and forty-four have been released. All cases of this nature that have been received have been attended to, and in every case that has been destroyed post-mortem examination has shown the disease."

"The commission has good reason for believing that much of the difficulty surrounding any attempt at the suppression of glanders and farcy is in the failure upon the part of some of those who make a business of treating sick horses, and who call themselves veterinarians, to report the cases that come to their knowledge. It is certainly true that practically no information of this kind is received from this source by the commission. Veterinary practitioners should be more anxious and more able than any other class of our community to be

active in helping to suppress a disease which is so destructive to horses and so dangerous to mankind."

We also publish from the Massachusetts Annual Report of 1895 the following valuable statistics :

BRIGHTON MARKET.

Long custom at these markets had established the practice of having the regular market day for the sale of animals upon Wednesday in each week. In order that the dealers might have their animals at Brighton ready for the market on Wednesday, their regular transportation companies had arranged for trains to bring cattle to these markets so that they should be delivered on Monday night and Tuesday morning of each week. The animals were then allowed a day of rest before being offered in the market, during which time they were given ample feed and water, and whatever attention the owners considered necessary, in order that they might be in as good a condition as possible on the day of sale.

In order to make a proper examination with tuberculin, it is necessary to submit the animal to the test for a period of at least twenty-four hours, not including the time necessary for taking proper preliminary temperature observations, in order to determine with reasonable accuracy the normal temperature of the animal before injecting the tuberculin.

It will be remembered that the conditions which confronted the commission when this work was inaugurated were that the animals, in the great proportion of cases, did not arrive at the market much more than twenty-hours before they were offered for sale. In order, therefore, that these animals might be tested before being offered in the market, if the market day was kept the same as heretofore and the animals were delivered at the same time, it was necessary to begin the test immediately upon their arrival, and therefore no time was given to quiet the animals before applying the test, or to feed and prepare them for sale in the market after the test was completed.

The first step undertaken, therefore, by the commission, as being the one that would produce the least inconvenience to the dealers, and which they hoped would be accompanied by favorable results, was to change the market day from Wednesday to Thursday in

each week. Under this arrangement the tests were begun upon Tuesday night and were not completed until late in the afternoon of Wednesday, at which time the animals which had shown no reaction to the tuberculin were delivered over to the owners. This arrangement was unsatisfactory to the dealers, because it gave them but little more than twelve hours in which to prepare the animals for market, whereas before they had had more than double that time in many instances. On the other hand, the animals were subjected to the test within practically twenty-four hours, and frequently within less, of their arrival in the market.

Under these conditions this work was carried on until April 30 of this year, when the commission came to the conclusion that it would be impossible to produce satisfactory results with tuberculin unless animals could be allowed a much longer time in which to settle into a sufficiently normal condition before being subjected to the examination.

In this connection it should be remembered that, while this work at Brighton and Watertown was being conducted under these peculiar conditions, the commission was at the same time successfully conducting large numbers of tests throughout the State, in systematic work and in examination of animals reported as suspicious; and it thus had an opportunity of comparing the results of these two classes of work, in which the same diagnostic agent was used, prepared in the same way and derived from the source; and the commission became convinced that the unsatisfactory results at Brighton were due to the conditions under which the tests were necessarily made, and not to the unreliability of the diagnostic agent.

As bearing upon this, the commission desires to quote the following statement from the eighteenth annual report of the Pennsylvania State Board of Agriculture for the year 1894, official document No. 7, at page 106, published during the present year:—

The experience of the officers of the Board in the administration of this test to more than one thousand animals appears to clearly prove the following points:—

1. That, in proper and capable hands, tuberculin is a safe and sure diagnostic agent for tuberculosis, and that in all the cases coming under our notice not a single error has been shown, although all cases of condemnation by this agent have been followed by careful post-mortems.

2. That great care is absolutely necessary in obtaining the normal temperatures of the animals. We usually start out with the intention of condemning all which indicate a rise of two and one-half degrees or more; and, inasmuch as the normal temperature varies somewhat with the time of day, the season and the time of feeding, some animals showing a considerable elevation of temperature at the time of feeding, but failing to show any further elevation under the action of the tuberculin, it is therefore very important to obtain the average normal temperature without its being influenced by surrounding circumstances....

9. That exposure to the hot sun, long-continued confinement in an illy ventilated building, unusual changes of food, especially from green to dry feed, failure to water at usual time, and in some nervous animals any exciting causè, may produce more or less variation from the normal temperature....

16. The causes which may produce a rise in temperature without the injection of tuberculin may be enumerated as follows:—

Near approach of calving, which, with some animals, will give a rise of temperature which may mislead. Variations in feed, especially from green grass to dry feed, without sufficient water; errors in this direction have been brought up off green pasture and confined in a barn, on dry food, while the test was in progress. With nervous animals, the excitement due to the presence of strangers and the attending surroundings may cause an elevation of temperature, which, however, from its low rate, should not mislead a careful observer. In fact, any sudden variation in the treatment of the herd may cause a rise in temperature, and, if this is not taken into account, it may at least partially mislead.

EXAMINATION OF ANIMALS QUARANTINED BY INSPECTORS.

An important branch of the work of this commission is suppressing tuberculosis is the examination of cattle quarantined by the local inspectors as suspected of being tuberculous. More or less of these animals are being constantly quarantined by these inspectors throughout the year, but the great bulk of them are usually so isolated, as the result of their regular inspections. This year, as has already been stated, the first regular inspection was ordered to be begun the 1st of October. The inspectors, however, as heretofore, were required to inspect and quarantine,

at any time, all animals which they had reason to suspect were affected with any contagious disease. The quarantines placed by inspectors upon cattle supposed to be tuberculous, since our last report, are from Dec. 15, 1894, to June 5, 1895, 1,776; from this last date to Dec. 15, 1895, 2,239,—a total of 4,015. Of the animals quarantined between Dec. 1, 1894, and June 5, 1895, all were subjected to the tuberculin test, and 795 condemned as tuberculous. Post-mortem examination disclosed the presence of the disease in the case of 780; in 15 no lesions of the disease were found. It will thus be seen that 43.9 per cent. of those quarantined were diseased.

Under the provision of section 14 of chapter 496 of the Acts of 1895, it is provided that, in the absence of written consent, no Massachusetts animal shall be subjected to the tuberculin test unless such animal has been already condemned as tuberculous, upon physical examination, by a competent veterinarian. Whenever, therefore, reports of quarantine are received from inspectors who are not also veterinarians, a "competent" man is at once sent to make a physical examination of suspected animals. It has further been the practice of the Board to obtain, if possible from the owners of these animals, permission in writing to apply the tuberculin test as a means of reaching a final decision. This permission has been given in all but four or five of the instances. In two of these, after a physical examination made by a competent veterinarian had failed to disclose the presence of tuberculosis, the animals were liberated. In the other cases they were condemned by similar physical examination, and examined with tuberculin. All of these animals—being those that were quarantined between June 5 and Dec. 15, 1895—except the two above mentioned were subjected to the tuberculin test; 1,000 were condemned as tuberculous and destroyed, and upon post-mortem examination disease was found to be present in 989 animals. In three cases, wherein the post-mortem examinations were made by the agents of the Board, no evidence of disease was found; in the local inspectors, who reported them to have been free from the remaining eight the post-mortem examinations were performed by disease.

It is impossible to give the accurate returns, at the time of making this report, of the total examinations made upon these inspectors, quarantines, for the reason that the Board is not yet in receipt of returns of all the examinations; and it is probable, therefore,

that this total of 1,000 represents the number diseased in a figure of one or two hundred less than the total of received quarantines, as hereinafter given.

TESTS MADE UPON VOLUNTARY REQUESTS.

Prior to June four it had been the policy of the commission not to make tests outside of the counties in which the systematic work was being conducted, except in cases where the animals had already been quarantined by the local inspector. In establishing this rule the commission was influenced by the fact that, with the appropriation at its command, it did not seem practicable to carry on both classes of work. There were, however, at this time numerous owners of neat stock throughout the State who desired to have their herds tested with tuberculin, and who were not willing to wait until they could be reached, in the natural course, under the systematic examinations. Arrangements, therefore, were made to authorize the examination of such herds wherein the owner in all instances was willing to pay the expense of making the examination, and the veterinarian employed by him was a fully qualified man in good standing. In such cases the result of the examination, showing in detail the thermometrical readings taken prior to and after the administration of the tuberculin, was transmitted to the commissioner for inspection and approval. In this class of work, prior to June 4, 1,514 animals were examined, of which 289 were condemned and found tuberculous, showing nineteen per cent. of disease. Upon June four the law of 1895 was passed, which restricted the use of tuberculin, so that it became impossible for the commission to further continue its systematic work; and as soon thereafter as possible the commission gave careful consideration to the matter of carrying out the provisions of section fourteen of this law, which provides that tuberculin may be used as a diagnostic agent on any animal or animals in any other (than Brighton, Watertown and Somerville) portions of the State, upon the consent in writing of the owner or person in possession thereof. After giving the matter careful consideration, the Board decided that the best method of eradicating the disease, under the restrictions placed by this act, would be to make tests of entire herds. In arriving at this decision the Board was influenced by the opinion that such a measure would result in the most economical method of administration, because a large

number of animals could be tested at one time, by the same agent; that it was more likely to do permanent good, because, by removing the disease from the entire herd, the owner would have an interest, thereafter in seeing that the disease was not reintroduced into the herd, thus making each owner practically a quarantine agent against untested cattle; and that the cleaning up of an entire herd enabled the public to ascertain readily the sources from which a supply of uncontaminated milk or an animal free from tuberculosis might be obtained. Accordingly the Board adopted the rule that it would test all herds where written application was made by the owner or person in possession, in the order in which such applications were received, so long as the appropriation at the command of the commission was unexpended.

Between December 1 and 16 inclusive there have been in addition 742 animals examined, making the total number to December 16, 4,093. Of this total number, 1,081 were condemned upon tuberculin test and killed. In 1,079 cases the disease was found upon post-mortem examination, and in two cases no evidence of disease was found. It will thus be seen that the percentage of disease in these herds was 26.3 per cent. and the percentage of error was $\frac{2}{1000}$ of 1 per cent. In all of these cases the animals were subjected to the tuberculin test under normal conditions, and the commission and its agent were accorded every assistance by the owners of the herds, again showing the great value of having the animals surrounded by persons and conditions with which they are perfectly familiar and friendly while undergoing the test, and the remarkable accuracy of the test under such conditions.

We desire, in this connection, to call your attention to the fact that the herds which were tested upon these voluntary requests were, as a rule, those which were being kept for dairy purposes, being apparently in good, healthy condition, in which, although the owners in numerous cases suspected that disease might be present, it was practically impossible for them to pick out diseased animals by means of any physical examination; and, believing that the disease could be removed only by the use of tuberculin, they requested the Board to make the examination. In these herds, while the members of the commission might and did pick out here and there an animal upon physical examination which they suspected of being tuberculous, as a whole there was nothing to indicate the

disease; nor was it possible, by such means, to pick out or even suspect the existence of the disease in any more than an occasional case here and there among the animals which were submitted for examination.

In every county in which tests have been made upon voluntary requests disease has been found to a greater or less extent among the herds so tested. Of the 314 herds examined, 24 herds have been found to be absolutely free from disease. While the percentage of disease (26.3) found is surprisingly large, it compares favorably with that found under similar conditions in other parts of the world, where the examinations have been as rigidly made as here; as for example, in the case of New York, where 34.9 per cent. of the animals examined under similar conditions were found to be diseased.

In attempting to deduce from these figures the probable amount of disease in the State, it should be remembered that, while these examinations cover a large number of animals, as compared with the total number in the State, they are but few, and in the majority of cases the owners had some reason to suspect that disease might be present, although they had no means of judging to what extent.

The table showing the voluntary requests received by the commission also shows that applications have been received to test 221 herds, embracing 3,346 animals, which have not yet been attended to on account of lack of sufficient appropriation. In addition to the examinations made upon these voluntary requests, further tests have been made by private veterinarians and approved by this Board covering 584 animals, of which 90 were condemned, and 89, or about 15.2 per cent., were found to be diseased.

The work of the commission in attending to the examination of herds upon voluntary requests has been extremely satisfactory. It has resulted in the removal of a large number of diseased animals which otherwise would be the source of the milk and food supply of some considerable number of people. It has demonstrated that the disease exists in almost every county of the State, and it has further demonstrated that in tuberculin we have a reliable agent, by means of which we can with substantial accuracy pick out all cases of the disease where the germ has gained any lodgment whatever in the animal's body.

The commission has experienced during the past year more or less scepticism as to the value of tuberculin as a diagnostic test, and

there has been a feeling, to a greater or less extent, that the use of tuberculin is an injury to sound animals. The Board has found, however, in connection with this class of work, in almost every case wherein herds have been examined upon voluntary requests, that upon the completion of its work numerous requests were immediately received from the owners of cattle in the immediate neighborhood; and, as the work has progressed, the confidence in the use of tuberculin has grown and the demand has increased to the extent which has already been shown.

In a large percentage of the cases where the animals have been condemned by tuberculin the owner or his representative has been present at the post-mortem examinations, and the commission has no knowledge of any instance in which the owner has not been satisfied with the result as finally declared.

Before leaving the subject of voluntary requests, the commission feels that it should call the attention of your honorable body to this class of work, as bearing upon the question of the best method of procedure in the matter of the suppression of tuberculosis among cattle. Under the law which is now in force, the owner receives for every animal destroyed as tuberculous by order of the commission, provided the animal has had the required residence in the State, the full value thereof at the time of condemnation, not exceeding the sum of \$60 for any one animal. The average amount received by such owners in compensation, under the provisions of this act, has been about \$35. Under the law of 1894, which provides for the payment of one-half the sound value, the average price paid for such animals up to the fifteenth day of December of last year was \$18.36. From the fifteenth day of December up to the fourth day of June, also half value, the average price was \$21.* In addition to this, the State bears the expense of making the examinations, so that, whether the work is done by systematic examination or in response to voluntary requests, the owner is given an opportunity, which, in the opinion of the commission, is a very valuable one, to have the sources of the disease removed from his herd without expense to himself, and without loss growing out of the destruction of any animal,—unless, of course, such animal has a fancy or pedigree value.

* Under the law of New York, which provides for the payment of half compensation, similar to our law of 1894, the average price paid for animals destroyed has been \$23.25.

In either class of work State animals only are tested, and every diseased animal destroyed removes one more source of contagion and menace to the public health through the sale of the milk derived therefrom. In the case of the examinations conducted on the systematic plan, the commission is working by force of law, and to a greater or less extent without the co-operation of the owners; whereas, in the case of examinations made upon voluntary request, it works, in every case, with the co-operation and assistance of the persons in charge of the herd. Other things being equal, it follows that better work can be done under the latter conditions than under the former. There is no doubt that, in examining herds upon request, the commission is removing a very great amount of diseased animals which are scattered throughout the State, and which are the source of the local milk supply; and it is also removing the disease from barns, many of which, it is to be hoped, will be protected by the owner against the further introduction of disease. The examination of herds upon voluntary request has not only given the owner an opportunity to remove the source of contagion, but in repeated instances has resulted in a public demand by the consumers of milk in such city or town that the herds from which they derive their milk shall also be tested. This has greatly assisted in the cleaning up of localities of greater or less extent, in substantially the same way as would be done upon the principle of systematic examination.

While this system of examination furnishes an opportunity to the owner to remove the disease from his herd and to the commission to remove the sources of contagion therefrom, it must also be remembered that there are numerous owners of herds who have not and probably will not make applications for such tests; although it is the feeling of the Board, based upon its experience at the present time, that the number of such people will decrease at a very rapid rate as the advantages of the test become more widely known, and as such persons find that the public refuses to receive the product from untested herds.

Another advantage of the herd work is, that it gives to the owners of neat stock an opportunity, if they so desire, to immediately clean up their herds, and by this means to furnish milk free from tuberculous taint to their customers; whereas, by the systematic work, no direct advantage is derived by the owners out-

side of the counties in which such work is being conducted, and thus it would result that certain portions of the State would be without this advantage for possibly many years to come. On the other hand, it must be remembered that, tuberculosis being a contagious disease, the State cannot expect to eradicate it by means of examinations of isolated herds upon written request. Such a method will diminish the risk of transmission of the disease to the human family, through the milk, by the destruction of just as many animals as are found to be diseased, and undoubtedly will to a great extent, in certain localities, result in the suppression of the disease. It cannot for a moment, however, be considered as adequate, if we hope or desire to eradicate tuberculosis. No plan can do that which does not eliminate every diseased animal and thoroughly disinfect the premises which have been inhabited by it; and, just so long as tuberculous animals are left within the State, such animals will act as a menace to others with which they may at any time be brought in contact, and may in this way constantly create new sources of contagion.

It may be argued that, by cleaning up herds upon voluntary request, the commission is doing in a small way what is being done on a large scale by systematic examination; but after these herds are examined it is impossible to practically quarantine them against the introduction of new sources of contagion. Such animals are during a considerable portion of the year turned out to pasture, where they may in contact with animals in adjoining pastures which have not been subjected to the test, and thus the disease may re-enter the herd. Again, while the owner may in most cases have an interest in protecting his herd, cases are likely to arise where, under special pressure, he may introduce untested animals, which may and probably will result in the reinfection of the herd. As a question of ultimate policy, looking to the eradication of the disease, the commission has not changed its view, as heretofore expressed that no method can be devised to accomplish this except one which is based upon a thorough systematic examination, with tuberculin, of all animals within the State, the thorough disinfection of all premises where the animals have been, and stringent quarantine restrictions against the introduction of untested animals.

On the other hand, for the present there is no doubt that the examination of herds upon voluntary request is a great benefit to

the agricultural community, and to the public who are the consumers of their product. It is impossible for the commission, with the assistance which it is able to get, and with the appropriation which has been or is likely to be made, to do both classes of work; and the Board is to-day in receipt of voluntary requests in greater numbers than it is able to attend to.

TUBERCULOSIS.

As experience ripens, we find that the contagious principle of bovine tuberculosis is fully as strong or stronger than was at first supposed. The reason for this seems to be entirely embraced in the fact that in tuberculin we have a much more perfect diagnostic agent than we have ever had previous to this time; and the results of investigation show that tuberculosis may be very quickly extended from the diseased animal to other healthy animals with which it may come in contact, but that in a large majority of cases the extension is exceedingly subtle. The animals, although they become affected, do not become sufficiently so to be attractive in their symptomology; whereas, with the use of tuberculin it is found that the animals are affected very quickly after exposure, and that the disease is largely disseminated throughout the herd; that it is received and amplified, by the newly infected, in a very small lesion, situated, more probably, in some of the deeper-seated glandular structures of the body, and then, because of the inherent resisting power of the animal, it does not receive a further development until after the lapse of some time, extending even to years in many cases.

PREVALENCE.

Upon page 28 of our report for last year will be found a statement as to the prevalence of this disease in other countries, gathered from such statistics as the commission was then able to obtain, and a statement that the Board had not been able, up to that time, to gather information sufficient to make any valuable estimate for determining the amount of such disease in Massachusetts. As the result of the experience of the Board up to that time, however, it was found that 24.58 per cent. of animals reported as suspicious by local inspectors were found to be

diseased; 6.21 per cent. of animals examined at Brighton, Watertown and Somerville, and .9 per cent. of the animals examined on the Island of Nantucket. From all of these figures and such other data as could be gathered, the Board was then of opinion that the amount of disease in the State might be in the neighborhood of 10 per cent. which, under the circumstances, was a mere estimate.

Since the introduction of the tuberculin test, the whole number of animals examined by the Board with this agent is 26,958 :

Number condemned as tuberculous.	4,389
Percentage of diseased animals in all classes of work.....	16
From Dec. 15, 1894, to Dec. 15, 1895, the total number of animals reported by the local inspectors and quarantined as suspicious, which have been examined by the Board, is.....	4,015
Number condemned as tuberculous.....	1,795
Percentage of diseased animals.....	44.7
From June 5 to December 16 the total number of animals examined upon voluntary request is.....	4,09
Number condemned as tuberculous.....	1,081
Percentage of disease.....	26.4
In the counties of Dukes County and Barnstable the total number of animals examined is.....	2,856
Number found to be tuberculous.....	9
Percentage of disease.....	31
Total number of carcasses examined in slaughter houses.....	18,738
Number condemned.....	192
Percentage of disease.	1
Total number of animals examined at Brighton, Watertown and Somerville, from December 26 to April 30.....	6,270
Number found diseased.....	256
Percentage of disease.....	4

Since the adoption of the new regulations relating to interstate cattle, substantially all of these animals are examined before coming here, therefore statistics of no value can be gathered from the few that have been examined and killed in this State. The percentages shown above vary so widely, according to the class of work, that the commission feels again that it is impossible to make any reasonably accurate statement as to the actual percentage of the disease existing within the State. In estimating the percentage of disease, the result of the examination of animals quarantined by local inspectors is naturally very largely in excess of the actual amount of disease in the State, because these are animals which present such symptoms as render them suspicious of being tuberculous. Whether or not the figures gathered from the herd work may be considered as showing the average amount of disease in the

YEAR.	All animals infected.	Bulls.	Oxen.	Calves.	Cows.
1888	11.1	11.2	7.3	5.0	17.5
1889	14.9	11.8	13.7	9.18	19.4
1890	22.3	17.8	50.9	9.4	27.8
1891	26.7	18.4	27.7	13.2	31.1

State is also a matter of some doubt, for the reason that in a large percentage of these cases, at least, the owners presumably suspected the disease to be present before requesting the test. In this connection it is also of interest to note the amount of disease found in various herds which have been examined by the commission upon voluntary request.

The following table shows a number of miscellaneous herds in which a large percentage of disease has been found :—

VOLUNTARY REQUESTS.

CITY OR TOWN.	Number tested.	Number condemned.
Haverhill	41	21
Littleton	27	20
Gardner	28	11
Barre	10	10
Norwood	10	10
Blackstone	10	10
Quincy	11	7
Dunstable	14	13
Ashby	9	9
Waltham	36	26
Dalton	16	9
Dedham	48	26
Marshfield	15	13
Whately	16	15
Palmer	40	18
Webster	45	20
Sherborn	36	25
Burlington	15	14
Cheshire	24	10
Cheshire	27	10
Shelburne	37	22
Ashfield	40	32

In other words, the percentage of disease thus far examined varies all the way from 0 up to 100 per cent. This table also shows that the disease is not by any means restricted to the more closely populated districts. Large percentages of disease are naturally found in localities where, from the nature of the business carried on, a large number of animals are exchanged. In localities where animals are raised on the farm and the supply kept up in

that way, the percentage of disease is generally found to be small, excepting that, when disease has once been introduced into any given herd, large numbers of cases are almost surely found in that herd, whatever the conditions are under which it is maintained. Statistics gathered from the returns from slaughter houses are, in the opinion of the commission, of little value in determining the prevalence of the disease; because, in the first place, under the present law all such diseased carcasses are destroyed without compensation to the owner; and, in the second place, this examination as at present conducted is, as has been shown, not by any means full. In other words, people will not slaughter animals in licensed slaughter houses in this State if there is any symptom of unhealthiness about them.

In a set of resolutions passed on Sept. 12, 1895, by the United States Veterinary Medical Association, in the convention held at Des Moines, Ia., the following occurs:—

WHEREAS, Tuberculosis is an infectious disease, dangerous alike to man and the lower animals; and

WHEREAS, Scientific experimentation has demonstrated the possibility of transmitting the disease through dairy and other animal products from tuberculous animals; and

WHEREAS, The extensive use of tuberculin as a diagnostic agent has thoroughly demonstrated its high value for that purpose; therefore, be it

Resolved, That it is the judgment of the United States Veterinary Medical Association that it is the duty of sanitary boards and other health officers to employ all practical methods calculated to restrict this disease.

Resolved, That we regard the tuberculin test as the only reliable means now known to the scientific world for detecting obscure cases of tuberculosis in the living subject, and that it is a reliable test when performed under proper and well-known necessary conditions. It is further—

Resolved, That reliance upon the physical examination of animals for the existence of tuberculosis is unwise, deceitful and unwarranted in the present day.

In the last International Veterinary Congress, held at Berne, Switzerland, in September, 1895, the following conclusion was reached and promulgated as being the opinion of the Congress:—

The flesh of tuberculous animals, if sold, should be subject to special regulations.

A part of this flesh must be destroyed, but some of it may be safely used for food.

The milk from cows with tuberculous udders is extremely dangerous.

The milk from tuberculous cows with apparently healthy udders may be dangerous, and is always suspicious.

In the year book issued by the United States Department of Agriculture for the year 1894 the following occurs:—

The dilemma in which the demands of public health have put the owner of cattle, as well as the health officer, has already been stated. The following statements referring to this subject are based upon a careful study of the distribution of the disease in a large number of animals. It needs to be emphasized here that arguments deduced from the superficial examination of a carcass and the simple determination of the presence or absence of tuberculosis are worth little or nothing in attempting to solve the problems presented by the sanitary side. Only a thorough survey of the entire distribution of the tuberculous deposits in animals furnishes us with approximately correct data.

The flesh of those infected cattle in which the disease is restricted to one or two primary foci must be regarded as entirely harmless and of full nutritive value. Even in advanced cases, which should always be rejected, the glands embedded in the muscular tissue are found infected only occasionally.

The condition of the milk in different stages of the disease is a question of much greater importance, and demands the most careful consideration. We may, for convenience and clearness, typify three stages:—

1. In the earlier stages of the disease, provided the udder is normal, the milk is free from tubercle bacilli.

2. In the more advanced stages, provided the udder is normal, the milk may or may not contain tubercle bacilli. If the disease has become generalized, the indications are that at some time or other tubercle bacilli may pass into the milk. This passage is revealed at the autopsy by disease of the glands or the udder. The indications are that this passage is largely temporary, perhaps lasting only a day before the tubercle bacilli are caught up and

filtered out into the lymphatic system. The indications are, furthermore, that comparatively few bacilli pass through the udder. The udder itself does not favor their development there, and the closest inspection fails to reveal any augmenting foci of disease. These statements are based upon careful examination of slaughtered cattle and the thorough testing of the milk from advanced cases.

3. When the udder is affected in any stage of the disease, a most grave condition is presented. Tuberculosis of the udder in most cases comes on in the later stages, when the virus is distributed by the blood from some disintegrated earlier focus of disease. Primary tuberculosis of the udder, that is, infection from without, has not yet been established definitely, and is probably of very rare occurrence. When the disease has started in the udder itself, tubercle bacilli may be discharged in the milk in large numbers and for long periods of time. The smaller the herd, in such a case, the more dangerous the entire milk becomes, because of the concentration of the virus.

Udder tuberculosis is thus a most serious danger, the importance of which cannot be too strongly urged. Fortunately, it is rare. The writer has encountered, among two hundred infected animals, only one case of udder disease, and sixteen others which, according to the post-mortem studies, may have shed at one time or another tubercle bacilli into the milk in small numbers, but which had no recognizable disease of the udder itself. The large percentage of udder tuberculosis reported by several writers lately is incompatible with all former statistics, and indicates either an unprecedented condition in certain localities or else an error in diagnosis. The stock owner, in the absence of proper dairy or other official inspection, is under serious moral responsibilities to remove from his herd those animals in which there is even a suspicion of udder tuberculosis. Any udder which is found to increase slowly in size without any indication of inflammatory processes, recognizable by the presence of heat, pain and redness, and which becomes very firm without showing at first any alteration in the appearance of the milk, should be regarded as infected, the cow promptly segregated, and the entire milk rejected until a diagnosis can be made by a veterinarian.

In view of the fact that tuberculin does not discriminate between dangerous and harmless cases, the public health problem as it presents itself in practice is simply this: what shall be done with all

the cattle which give the tuberculin reaction, in order that we may catch and destroy the ten per cent. of slightly and temporarily dangerous cases among them, or the one per cent. of serious cases? Some of the dangerous cases are so far along in the disease that they are easily detected without the aid of tuberculin, but this is by no means true of the majority. The situation certainly demands a most rigid periodical inspection of all animals furnishing milk to consumers, the prompt removal of all suspicious cases, and, above all, a more thorough control of the dairy in the interest of public sanitation.

In 1890 a Royal Commission was appointed by the government of Great Britain, "to inquire and report what is the effect, if any, of food derived from tuberculous animals on human health, and, if prejudicial, what are the circumstances and conditions with regard to the tuberculosis in the animal which produce that effect upon man?"

This commission, after nearly five years of consideration and investigation of this subject, at an expense of more than \$90,000, reported on April 10, 1895, and from this report we quote the following:

The primary object of the commission, to learn the "effect of food derived from tuberculous animals upon human health," was obviously one that could not be attained by direct experiment upon human beings. Yet it was upon this question that there had been least accord among the witnesses, though they did agree in their assurances that there was no valid evidence on the point to be had. The commission undertook, therefore, these inquiries as to the effect of tuberculous food upon the health of lower animals, in the expectation of obtaining information applicable to the case of a human subject.

Dr. Martin selected for his experimental research a variety of animals which differed in their customary food material: pigs, guinea-pigs and rabbits. The animals were fed with their usual food, with the addition of some material (sometimes meat,—much in the sense that a butcher might speak of meat,—sometimes milk, but always uncooked) derived from a tuberculous animal. No particular examination for actual tubercle in the food material was made in the experiments now being recorded, but some care was taken to avoid any obvious mass of tubercle.

Of each kind of animal thus fed, a certain percentage was found to become tuberculous : of pigs, 36 per cent. (5 out of 14) ; of guinea-pigs, 16 per cent. (24 out of 145) ; of rabbits, 15 per cent. (2 out of 13.)

The experiment comprised also a number of animals kept under the same conditions as the rest (the pigs being members of the same litter,) and only differing from the other animals of the experiment by receiving no material from a tuberculous animal in their food. Of these "control" animals (numbering 5 pigs, 203 guinea pigs and 8 rabbits,) none became tuberculous.

We cannot but regard these differential experiments as showing a danger to a healthy animal from the introduction into its food of material taken from a tuberculous animal.

Further, Dr. Martin made experiments, not only with feeding material "derived from tuberculous animals," but with material containing tuberculous matter, recognized as such, and purposely added to the food of the experimental animal. This was done in the case of 1 pig, 8 guinea-pigs and 10 calves ; and of these, the pig, 6 guinea-pigs and 8 calves became tuberculous. In these experiments the tuberculous matter had been taken sometimes from a bovine, sometimes from a human source, and it is noteworthy that each animal received only a single dose of it.

Other experiments with manifestly tuberculous matter are recorded by Dr. Woodhead among a number of investigations made in the course of his own inquiry undertaken for us. He found this matter, given (uncooked) to various animals, gave rise to tuberculous disease in all the pigs (7) and all the cats (5) that received it, and in 50 guinea-pigs out of 76.

These more particular experiments by Drs. Martin and Woodhead, made with matter that had been identified as tuberculous, add much force to the inference derived from Dr. Martin's more general experience. They indicate, in the material used in feeding, the element that is dangerous to the healthy animals which have been fed.

We cannot refuse to apply, and we do not hesitate to apply, to the case of the human subject the evidence thus obtained from a variety of animals that differ widely in their habits of feeding,—herbivora, carnivora, omnivora. As regards man, we must believe—and here we find ourselves agreeing with the majority of those

who gave evidence before us—that any person who takes tuberculous matter into the body as food incurs some risk of acquiring tuberculous disease. By “tuberculous matter” we mean here, of course, that which is capable of giving rise to tuberculosis in lower animals. This matter may be found in parts of animals affected by the disease. It is known to the naked eye by some well-marked though various characters, and microscopically by the all but certain discovery of characteristic bacilli,—the bacilli of tubercle.

It is this same matter, however,—known by naked-eye characters that are very closely the same in man and in animals, and by microscopical characters that are all but identical,—that gives rise to tuberculosis in the human subject. And we find the present to be a convenient occasion for stating explicitly that we regard the disease as being the same disease in man and in the food animals, no matter though there are differences in the one and the other in their manifestations of the disease; and that we consider the bacilli of tubercle to form an integral part of the disease in each, and (whatever be its origin) to be transmissible from man to animals and from animals to animals. Of such transmissions there exists a quantity of evidence, altogether conclusive, derived from experiment. It is with the transmission of the disease to man by the ingestion of animal food that the present commission is concerned.

The results of their entire inquiry into this matter are summed up by the Royal Commission as follows :—

We have obtained ample evidence that food derived from tuberculous animals can produce tuberculosis in healthy animals. The proportion of animals contracting tuberculosis after experimental use of such food is different in one and another class of animals; both carnivora and herbivora are susceptible, and the proportion is high in pigs. In the absence of direct experiments on human subjects, we infer that man also can acquire tuberculosis by feeding upon materials derived from tuberculous food animals.

The actual amount of tuberculous disease among certain classes of food animals is so large as to afford to man frequent occasions for contracting tuberculous disease through his food. As to the proportion of tuberculosis acquired by man through his food or through other means we can form no definite opinion, but we think it probable that an appreciable part of the tuberculosis that affects man is obtained through his food.

The circumstances and conditions with regard to tuberculosis in the food animal which lead to the production of tuberculosis in man are, ultimately, the presence of active tuberculous matter in the food taken from the animal and consumed by the man in a raw or insufficiently cooked state.

Tuberculous disease is observed most frequently in cattle and in swine. It is found far more frequently in cattle (full grown) than in calves, and with much greater frequency in cows kept in town cow houses than in cattle bred for the express purpose of slaughter. Tuberculous matter is but seldom found in the meat substance of the carcass; it is principally found in the organs, membranes and glands. There is reason to believe that tuberculous matter, when present in meat sold to the public, is more commonly due to the contamination of the surface of the meat with material derived from other diseased parts than to disease of the meat itself. The same matter is found in the milk of cows when the udder has become invaded by tuberculous disease, and seldom or never when the udder is not diseased. Tuberculous matter in milk is exceptionally active in its operation upon animals fed either with the milk or with dairy produce derived from it. No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter.

The recognition of tuberculous disease during the life of an animal is not wholly unattended with difficulty. Happily, however, it can, in most cases, be detected with certainty in the udders of milch cows.

Provided every part that is the seat of tuberculous matter be avoided and destroyed, and provided care be taken to save from contamination by such matter the actual meat substance of a tuberculous animal, a great deal of meat from animals affected by tuberculosis may be eaten without risk to the consumer.

Ordinary processes of cooking applied to meat which has become contaminated on its surface are probably sufficient to destroy the harmful quality. They would not avail to render wholesome any piece of meat that contained tuberculous matter in its deeper parts. In regard to milk, we are aware of the preference by English people for drinking cows' milk raw, a practice attended by danger, on account of possible contamination by pathogenic organisms. The boiling of milk, even for a moment, would probably be

sufficient to remove the very dangerous quality of tuberculous milk.

In a bulletin very recently issued from the experiment station of the Agricultural College of Iowa the following statements are made as a result of investigations conducted by several scientists:—

Milk from tuberculous cows may convey disease to the consumer.

Milk from tuberculous cows having non-affected udders may convey the disease.

At a meeting of the Association of New England Cattle Commissions, held at Providence in September last, many instances were related by the members present of cases which have come to their personal knowledge, wherein, undoubtedly, disease had been communicated to people partaking of the milk of diseased animals. Several delegates related instances where members of their own family had died of tuberculosis, contracted, in their opinion, from the use of the milk of tuberculous cows. It is to be regretted that the statements made at this meeting cannot be more fully given; but, as no shorthand reporter was present, a full report was not made; but the evidence as appealing to those present at the meeting was, to say the least, startling.

Upon this subject Dr. F. H. Rich of Burlington, Vt., Experiment Station, read a very interesting paper upon the relations between bovine and human tuberculous, in which, among other things, he stated that bovine tuberculosis was of comparatively recent date in this country, and was undoubtedly imported. It is undoubtedly infectious, and easily transmitted by tissue or milk to other animals. Where an infected herd is found, the young stock and hogs are often found infected by the milk. There are two kinds of the disease in both bovines and man,—acute and chronic. The symptoms are much the same in both humans and bovines, although, while in man it causes emaciation, the bovines are usually as sleek and fat as ever. The bovines retain their appetite, while the humans lose theirs. He gave several instances where the owners of herds found to be infected with tuberculosis had died with pulmonary tuberculosis, evidently taken from the milk of the animals. Other instances were given where the pricking of a finger on a piece of bone from an infected animal had caused tubercular meningitis. All the standard medical works recognize the use of tuberculous meat and milk, especially the latter, as a potent cause of tuber-

culosis in man. For this reason the boiling of milk is usually advisable.

Among the various forms of human tuberculosis we have the acute general miliary form, resembling the acute fevers, usually terminating fatally in a few weeks. Then we have several types affecting the lungs more particularly, acute and chronic miliary tuberculosis of the lungs, and acute and chronic tubercular phthisis. Tubercular lymphatic glands are very common, particularly in children. Tubercular meningitis is also becoming quite common in children, while tuberculosis of the intestines and mesenteric lymphatic glands accounts for a large proportion of the deaths of children, particularly in our large cities, from so-called bowel difficulties. The tuberculous affections of the skin are lupus, scrofuloderma and anatomical tubercule. Rectal fistula and much of the so-called chronic diarrhœa are now considered to be of tubercular origin. Tuberculosis of the joints and bones is very common indeed, familiar examples of which are hip-joint diseases, white swelling of the knee and Pott's disease of the spine.

Mortality statistics show that fourteen per cent. of all deaths result from tuberculosis. The human system is equally if not more susceptible to the invasion of this infection than that of any of the lower animals. Milk is more to be dreaded than meat, because it is taken raw, and the udder is so often the seat of tuberculosis. Even in the absence of tuberculosis of the udder, the milk is sometimes infectious. It is routine practice to place patients upon milk diet during the course of and convalescence from nearly all acute diseases, when, by reason of lowered vitality, they are temporarily predisposed to tuberculosis, thus combining the most favorable conditions for the implantation of the active germ. This fact seems to offer paactical explanation of the frequent super-vention of tuberculosis upon other diseases.

Tuberculous meat is not liable to infect, if it is thoroughly cooked, because of the sterilizing effect of heat; but the interior of rare steaks and roasts are not sufficiently heated to destroy the tubercule bacilli occurring in the several lymphatic glands included, and in tuberculous pork the bacilli are even found in the muscle proper. The livers of both cattle and hogs, so commonly eaten, are tuberculous in a very large number of cases.

While there is a pretence at inspection in our great packing centres, there is little if any elsewhere in this country. Our home-

dressed beef consists principally of old, worn-out cows, an alarmingly large percentage of which are tuberculous. The hind quarters will usually pass detection, which, together with such fore quarters as can be trimmed up and made passable, are sold in our markets. Some parts that will not bear passing scrutiny in the market are converted into corned beef, sausage, or are canned; while such as are too far gone for this are, together with all diseased viscera and other slaughter-house refuse, fed to a drove of hogs kept for that purpose, which in turn contract tuberculosis, are slaughtered and sold in our markets, and thus little of the infection fails to reach some home. The importance of the subject is shown by the mortality statistics, from which it is seen that three million human beings die of the disease every year.

At the close of the meeting the members present passed the following resolution:—

Resolved, That the members of this association are of the opinion, which is based upon personal knowledge and observation, that there can be no doubt that tuberculosis is frequently transmitted from cattle to the human family; and we therefore recommend the enactment of laws that will suppress this dangerous disease among cattle.

At a meeting of the Suffolk District Medical Society, a division of the Massachusetts Medical Society, held on April 27, 1895, the following resolve was unanimously adopted:—

Resolved, That the existence of tuberculosis among neat cattle within this Commonwealth is a menace to the public health, as we believe that bovine and human tuberculosis are identical,—that is, that they are caused by the same germ, and that it is possible for the disease to be transmitted from the lower animals to man by the use of milk or meat from diseased animals. We shall heartily endorse any methods that may be undertaken by the State which will include a careful and thorough examination of all animals from which milk supply is obtained, and which shall also keep a close supervision over the meat products coming from slaughter houses within the Commonwealth.

CIRCUMSTANCES DETERMINING DANGER TO MAN FROM MEAT AND
MILK OF TUBERCULOUS ORGANS.

In regard to the danger from the use of meat, we quote further from the report of the Royal Commission :—

We regard it, then, as established that any person who takes tuberculous matter into the body as food incurs risk of acquiring tuberculous disease; and we know that this matter may be found in parts of animals affected by the disease. It is therefore of the first importance to us to note what parts of a tuberculous animal are liable to contain this tuberculous matter, having well-marked characters of its own, and among them the bacilli, which form an integral part of the disease. From this view point we would report separately upon meat and milk derived from these animals, and begin our consideration with meat.

We find it necessary, in our study of the "circumstances and conditions, with regard to tuberculosis in the animal," which endanger human health, to include in our definition of meat the various parts of the tuberculous food animal, and to assume a certain acquaintance with the actual presence of tubercle in the several parts. When, on the other hand, we wish to speak of the customary "joint" of the butcher, and to exclude organs and other tissues, we refer to it as *meat substance*. We do not propose to consider, except incidentally, carcasses from which the organs have been removed in such wise that the condition of them could not be known to us.

We have now to point out the very great difference in one and another part of a tuberculous animal in the amount of tuberculous matter contained in the meat. This matter is found principally in the organs of the animals; as a rule, most abundantly in the lungs, lymphatic glands, serous membranes, but often in the liver, spleen, kidneys, intestines and other structures. These organs are usually removed by the butcher in "dressing" the carcass, though some of them may, intentionally or not, be left. To a practised eye it is hardly possible that tuberculous matter in these organs can escape detection, and the importance of its presence there will soon be apparent; for in the tissues which go to form the butcher's "joint" the material of tubercle is not often found, even where the organs exhibit very advanced or generalized tuberculosis; indeed, in muscle

and muscle juice it is very seldom that tubercle bacilli are to be met with; perhaps they are somewhat more often to be discovered in bone, or in some small lymphatic gland imbedded in intermuscular fat. Yet there is always a difficulty in making sure of the absence of tuberculous matter from any part of a carcass that shows evidence of tubercle elsewhere.

In Dr. Martin's experiments for the detection of tuberculous matter three kinds of test were employed; first, minute examination of the part for tubercle, with the aid of the microscope, to discover tubercle bacilli; secondly, feeding susceptible animals—test animals—with suspected matter; and, thirdly, introducing into the bodies of test animals some of the suspected matter by way of inoculation,—a more delicate test than the process of feeding.

Applying these tests to the meat substance of twenty-one cows known to be tuberculous in one or another degree, he could not get visible evidence of tubercle except in two instances, and there it was of very small amount. He records the results of his other tests as follows: "Of eight cows (mild tuberculosis), the meat of one gave positive results in one animal from inoculation, none by feeding. Of eight cows (mild tuberculosis), the meat of three gave positive results in four animals from inoculation, none by feeding. Of five cows (generalized tuberculosis), four gave positive results either by inoculation or by feeding," one only out of four appearing to answer to both tests.

The animals which had yielded affirmative results to his test of minute examination were not among the last five; they were in the group of cows with "moderate tuberculosis," and had given no result by feeding test animals with meat from their carcasses, though meat from one of the two had, upon inoculation, responded to the test.

These were not the results to be expected from Dr. Martin's experiments, if he were really using muscular tissue (with its usual concomitants, forming "meat substance") containing or not containing tuberculous matter among the fibres. He would not have expected to find himself repeatedly giving rise to tuberculous disease by the use of material in which no tubercle could be detected by his ocular tests. He might have expected, on the other hand, a more uniform affirmative result when he was experimenting with the two cows whose meat had shown to his eye and his microscope evidence of tuberculous matter; though he might have explained a failure

to get such results by the small amount of tubercle discovered there. And certainly he did not expect to get, if he was using only such tuberculous material as was present in the muscular tissue of his twenty-one cows, the egregious irregularities which he observed in his feeding and inoculation experiments. He was dealing with a quantity of tuberculous matter supplied to him, not, he reasoned, from the muscular tissues that he had proposed to investigate, but somehow from the general carcass of the cow, and abundant in the matters he was inoculating just as it happened to be abundant in the general carcass, and insufficient in amount, until he came to the maximum amount in the general carcass, to react to the test of feeding, though (with smaller amounts in the carcass) he had sometimes got an answer to the more delicate test of inoculation.

Dr. Martin tried in vain to explain these unexpected results by a hypothesis that he had overlooked some minute tubercles in the small portions of meat that had been used by him in his feeding and inoculation experiments. Even this hypothesis would not account for all the observed facts. And he presently saw another consideration, of a different nature, which he might not have sufficiently taken into his account,—the operations, namely, of the slaughterer and butcher.

Dr. Martin was not, at this stage of his researches, experimenting broadly about things in general taken from the carcass of an animal after slaughter, but he was trying to learn the distribution of tubercle in the body of the animal, in the hope of adding to our knowledge of the conditions which might give to meat the quality of injuring the consumer of the meat. Still, he was dealing with meat, as meat would be sold by the butcher. He had already sought, by discriminating between "trimmed" and "untrimmed" meat, to estimate the risk of including in his own specimens of meat the stuff which, for little else, than for the sake of tidiness, the butcher removes in preparing his joint for sale, and that consists *inter alia* of bits of gland and serous membranes. But, though he had been at some pains to secure that this trimming was done with efficiency, there proved to be no constant line between the trimmed and the untrimmed meat in its effects upon test animals.

He now came to see a real and considerable danger to the meat, of the same nature as that which he had previously sought to estimate when he was careful about the trimming of meat,—a danger

that was somewhat less obvious, but would be quite as real. This was, the probability of the meat becoming contaminated from the actual tuberculous lesions, present in other parts of the carcass, and conveyed from thence to the proper meat substance by the hands, knives and cloths of the butcher, during the processes of flaying and dressing. This was a danger that would doubtless increase along with increased abundance of the material of tubercle in the carcass. "The greater the amount of tubercle there is in the cow, the more likely is the sticky caseous matter to get smeared over the carcass;" and much that was inexplicable in the results of feeding and inoculation of test animals would be rendered intelligible.

Dr. Martin writes: "If we imagine that the meat gets contaminated accidentally in this way, it is easy to explain the irregularity of the results: (1) how, for example, in cases of mild tuberculosis of the cow, the danger of contamination is not great, and therefore the meat does not get smeared to any extent during removal, so that no positive results were obtained by feeding, and only one positive result by inoculation, and this a case of local tuberculosis, showing a small dose; (2) how, in cases of moderate tuberculosis, where chiefly the lungs and lymphatic glands in the thorax are affected (and so may be removed entire without incision of a tuberculous lesion,) the meat, as in cases of mild tuberculosis, would not become much contaminated, and thus did not produce tuberculosis by feeding; and how in these cases the knife is more likely accidentally to incise a tuberculous lesion than in cases of mild tuberculosis, and that therefore the number of cases of positive inoculation is greater. . . . With generalized tuberculosis of the cow this danger would increase, since so many parts of the body are affected with the disease, so that in such cases we meet for the first time with positive results from feeding, but not uniformly positive. . . .

"Taking all the results together, the method of removal of the meat, the results of inoculation and of feeding, one is driven to the conclusion that when meat is infective it commonly acquired its properties by being accidentally contaminated with tuberculous material during its removal from the carcass. This conclusion, it is evident, is one of great practical importance, bearing directly on the question of the condemnation of the meat of tuberculous cattle for human consumption. And it is evident, also, that the infective properties of meat might vary with different series of experiments; . . . the result depends on the care taken in guarding against

contamination more than on anything else. The conclusion arrived at in parts explains the extremely divergent results obtained by previous observers."

The observations by Dr. Martin cannot altogether dispose of this hypothesis, that the unexpected affirmative results obtained by his feeding and inoculating experiments may have been due to the presence of unobserved tuberculous matter in the meat substance, possibly in the actual muscular tissue; but they certainly show another and more obvious way in which these results may have been brought about. To have demonstrated this extrinsic way of rendering dangerous the meat substance of tuberculous animals, is to destroy all evidence that might otherwise have been obtained respecting the wholesomeness or unwholesomeness of the proper meat substance towards his test animals.

We note, in passing that this method of endangering the meat substance could not have been detected upon carcasses from which the organs, together with any "grapy" deposit, had been removed. And it is pertinent to observe, in connection with a contamination so effected, that this extrinsic danger to harmless meat (or to meat that was, for all that is shown to the contrary, harmless) might just as well be encountered by meat from another animal (whether pig, sheep, or calf, ox or cow) that was perfectly free from tubercle, but only had happened to be the next animal brought to the same slaughterer.

Having regard to Dr. Martin's invariable failure to produce tubercular disease by feeding (though he sometimes did succeed by inoculating) test animals with the meat taken by him from cows with mild or moderate tuberculosis, and admitting his explanation of an affirmative result, sometimes seen when meat was being taken from cattle with advanced or generalized tubercle, we are prepared to believe with him that, if sufficient discrimination and care were exercised in taking meat from tuberculous cattle, a great deal of meat from them might, without danger, be consumed by the community. The practice of public abattoirs on the continent appears to be founded on the same belief.

Dr. Martin, having shown that tuberculous material may be thus distributed through the carcass of an animal, and regarding the disease as being at its early stages a local disease, and its material as being in the first instance limited to the neighborhood of the

place at which it had originally entered the body, is ready to formulate certain precautions that could be taken for reducing to a minimum, so far as present knowledge extends, the danger to human consumers of meat by their partaking of tuberculous meat. He would advocate, as a principle, that the operations of slaughter and dressing should be done under skilled supervision, with the object of securing the removal and destruction of every part of a carcass that contained any tubercle whatever, and also the destruction of the whole carcass in cases where the animal was found to have advanced or generalized tuberculosis. He indicates, for the assistance of any meat inspector, various evidences of the disease having reached that more serious stage. For the rest, Dr. Martin sees no objection to the sale of meat substance from carcasses which have shown only localized tuberculosis, and from which every particle of tubercle has been skilfully removed; provided always, that, in every subsequent process of preparing the meat for sale, due care be taken to guard the salable portions from contamination by tuberculous matter.

Reporting upon his twenty-one tuberculous cows from his present stand-point, Dr. Martin tells us that, if his ideal precautions had been in force, the meat of nine cows would have been condemned, and the meat of the other twelve might have been sold.

It is hardly necessary to point out that little evidence about the more serious degrees of tuberculosis in the animal would be discoverable in the carcasses from which the organs had been removed; and that this is habitually the case with so-called "dead meat" whether English or foreign. Still, there are indications in such a carcass, to the eye of an experienced inspector, of the more dangerous forms of tuberculosis having existed in the animal.

Dr. Martin's suggestions are, in our judgment, based on well-ascertained pathological facts. We have no doubt that the supervision which he recommends would tend, in an important measure, to the security of the public. But we are well aware that the difficulties of such supervision are so great that many years must elapse before any measure of an effectual kind can be carried into practice.

In the mean time, we venture to express our confidence that the precise information which has now been gained as to the nature, extent and limitation of the risks which arise from the consuming

of the meat of tuberculous animals may be of value to those who have concern with our meat supplies, in guiding them to the adoption of such precautions as may, under present conditions, lie within their power.

Some very careful experiments, to ascertain the influence of cooking upon meat, were made by the Royal Commission, and of it they have the following to say :—

In the boiling and roasting experiments, as ordinarily carried out in the kitchen, the temperature, however high it may be near the surface, seldom reaches 140° F. in the centre of a joint, except in the case of joints under six pounds in weight. Ordinary cooking is quite sufficient to destroy any smeared material that remain on the outer surface of the meat. *But it cannot be relied upon in the slightest degree to render inoculous the same smeared material when in the centre of a roll. . . .* Ordinary cooking, such as boiling, and more especially roasting, though sufficient to sterilize the surface and even the substance for a short distance from the surface of the joint, cannot be relied upon to sterilize tubercular material included in the centre of rolls of meat, especially when these are more than three or four pounds in weight. The least reliable method of cooking for this purpose is roasting before the fire, next comes roasting in a oven, and then boiling.

Regarding the dangers coming through the use of milk from diseased animals the evidence is much greater, and facts are much more easily procurable. In this connection we again quote from the report of the Royal British Commission :—

According to our experience, then, the condition required for insuring to the milk of tuberculous cows the ability to produce tuberculosis in the consumers of their milk is *tuberculous disease of the cow, affecting the udder*. It should be noted that this affection of the udder is not peculiar to tuberculosis in an advanced stage, but may be found also in mild cases.

Further, with reference to this disease, Dr. Martin writes ; “The milk of cows with tuberculosis of the udder possesses a virulence which can only be described as extraordinary. All the animals inoculated showed tuberculosis in its most rapid form.” Dr. Woodhead, investigating, for his own purposes, the effects of unboiled milk, speaks in similar terms of this virulence of milk derived from tuberculous udders and inoculated into test animals. The two

observers had occasion to use milk from a cow that had tuberculous disease in one-quarter only of the udder, and they found the milk from the other three-quarters to be perfectly harmless on inoculation; but the mixed milk taken from the four teats was to all appearance just as virulent as the milk from the diseased quarter. Butter, skim-milk, buttermilk, obtained from the milk of a cow having tuberculous udder (by the usual processes, but with complete precautions against accidental contamination of articles used in the manufacture,) all contained tuberculous matter actively injurious to test animals.

And not only this virulence, but the rapidity with which milk can obtain its harmful quality, attracted Dr. Woodhead's attention. He reports: "A most important point is that the spread of tubercle in the udder goes on with most alarming rapidity,—this I was able to observe in the cows constantly under observation; but I have also noticed on several occasions, during the interval between fortnightly inspections carried on along with a veterinary surgeon, that the disease has become distinctly developed. It may be, of course, that the early evidence has been overlooked at the previous inspection; but, whether this is the case or not, the spread of the disease was so rapid as to afford very good ground for alarm. The very absence of any definite sign in the earlier stage is one of the greatest dangers of this condition." And both Dr. Martin and Dr. Woodhead insist that no tuberculous animal of any kind should be allowed to remain in a dairy.

The withdrawal from dairies of every cow that had any disease whatever of her udder would form some approach to security against the serious danger incurred by man from the use of tuberculous milk, but it would not be an adequate security. The presence in a dairy of a tuberculous cow, as Drs. Martin and Woodhead have shown, is a decided source of danger to the public, especially having regard to what we have learned respecting the rapid development of tuberculosis in the udder, and the degree of danger to milk consumers incurred by the invasion of the udder in tuberculous cows.

It follows, from the observations here recorded, that it is of supreme importance to the consumers of milk that the existence of any tuberculous disease of the udder should be ascertained without delay. Now, there is no difficulty whatever about recognizing the presence of *some* abnormal condition in a cow's udder, and the pres-

ence of such condition—whatever it be—demands that the judgment of a responsible expert should forthwith be obtained about its nature,—unless, indeed, the owner prefers to slaughter the cow without delay. If the expert finds tubercle bacilli in the milk, the cow has dangerous tuberculosis of the udder. If he does not find them, he may apply the further test of inoculating some susceptible animals with the milk, and thereby learn the nature of the udder disease. By this test he will very rarely be misled. Obviously the cow must be in seclusion, and every particle of her milk must be treated as highly dangerous, during any delay that can be permitted for diagnostic purposes, and until the disease has been proved not to be tuberculosis.

In considering this part of the report, one is at once struck with the hesitancy with which the commission recommend the use of milk from tuberculous cattle, even although the animals do not show apparent udder lesions; and the question for us at once arises, as to whether or not it is practicable, in dealing with this matter on so large a scale, to draw any line whatever as to the location of the disease; that is to say, even with this testimony in view, is it not far better and safer to at once destroy the cow, when it has become clear beyond doubt that she is the victim of tuberculosis?

As to the influence of the cooking process upon tubercular milk we have the following, from the report of the Royal Commission:—

Sterilization towards tubercle can be effected by heating the milk in a water bath, continuing the process until the temperature has risen from 176° F. to 198° F.,—a result which in most cases requires each several quarts of milk to be in the water bath for some half hour.

Dr. Woodhead has not wholly demonstrated to our satisfaction the innocence of tuberculous milk treated in this manner; he tells us of pigs succumbing to tuberculosis after feeding with tuberculous milk heated to 176° F. for ten minutes, without giving adequate data about the action or inaction of the milk after longer exposure to this temperature; and his experience of the higher temperature is derived from guinea-pigs only, not from pigs; though, as he has shown, guinea-pigs do not supply such good evidence as pigs about the influence of heat upon tuberculous matter in use as food.

In speaking further of these experiments made by Dr. Woodhead, the Royal Commission say :—

Nor, if we regarded the described method as certain in its efficiency, should we hesitate to refer to any such “sterilization” the simple expedient of putting every suspected milk over the fire and taking it off when it boils.

A very interesting statement of this report is as follows :—

In the course of Dr. Woodhead's observations on the degrees of heat wanted to destroy the operation of tuberculous matter in milk, he noted the effects upon tuberculous material resulting from temperatures insufficient for its actual destruction. He could, by the operation of certain lower temperatures, obtain from “the most deadly tuberculous material” contained in milk a weaker sort of tuberculous matter, so tardy in its operation on test animals as to simulate the slower forms of consumption seen in the human subject; or, when used to feed pigs,—animals having some specialties of throat structure like that of man,—gave rise to chronic enlargements of the throat glands, resembling the scrofulous glands so common in children. These observations are of much interest to us, not least because they suggest the possibility of widely prevalent forms of human tuberculosis owning an origin in milk.

In the eighth annual report of the Vermont Agricultural Experiment Station, recently published, upon page 54 we find the following :—

It is obvious that direct experiment on man with tuberculous material from the lower animals is out of the question. There are on record, however, a number of cases of accidental infection of human beings by the products of tuberculous cattle. There is reason to believe that countless thousands of deaths have occurred due to this source of infection, which have not been thus ascribed and of which no record has been made. Children are more likely to be infected than adults, owing to their tissues being less resistant, and because their chief food is milk. It should not be inferred, however, that disease and death of necessity follow the consumption of tuberculous meat or milk.

Following this will be found, upon pages 54, 55, 56 and 57 of the same report, a minute relation of a large number of cases, in which it seems clear that tuberculosis has been contracted by mankind from using as food the milk and meat coming from diseased animals.

USE OF TUBERCULIN.

It is generally agreed, as will be seen by the statements of leading authorities already quoted, that tuberculosis exists in a very large degree among neat stock; that the existence of such disease in these animals is a menace to a greater or less extent to the human race, through the danger of the transmission of the disease by the consumption of the meat and milk of such animals. And the important question is, What steps can be taken to remove or lessen the danger of the transmission of this disease through the medium of milk and meat.

Of course the danger from this source can be removed by ceasing to use the milk and meat product of such animals; but such a step is utterly impossible, as this forms such a large proportion of the food of the human race. If this product must continue to be used, the question would arise, can it be so purified as to remove or destroy the contagious principle contained in it, or can steps be taken to prevent such product containing such contagious principle? To remove the contagious principle from the milk or meat before consumption is, as a whole, impracticable, as has already been shown in other portions of this report. Sterilization of milk as ordinarily conducted, and the cooking of beef in the manner that it is ordinarily done, are not sufficient to destroy the germ, although they may to a greater or less extent lessen the danger from this source. Inasmuch as it is impossible to know without special experimentation whether the milk or beef in each particular case contains the contagious principal, such a system, to be at all adequate, would require the sterilization of all of this product; there is no practical means of accomplishing this, even if it would result in the destruction of the germ, for the reason that the public at large, not realizing the importance of the work, would not take the necessary steps.

In the case of milk, the Royal Commission were of the opinion that nothing short of boiling would destroy the contagious principle; and it is a well-known fact that in boiling milk its constituents are so thoroughly changed that it is not as useful as a food, especially for infants, as that which has not been subjected to this great degree of heat. As a public sanitary measure, therefore, any system looking to the sterilization of the milk product, as a whole, would fall short of accomplishing the desired result. We must,

therefore, either eliminate from the milk product that which is diseased, and destroy it, or we must see that the source from which the milk is derived is free from disease. It is impracticable, as a public sanitary measure, to eliminate the diseased milk and meat by means of any systematic examination of those products, as distinguished from the animal from which it is derived. The bacilli are so minute, and often widely scattered, that, even if these products could be submitted to microscopic examination, it would not result in the detection in all cases of the presence of the germ. The only other method of detecting the germ is by the inoculation of the lower animals, such as guinea-pigs, with the suspected meat or milk; but this is impracticable, for the reason that, before the result can be obtained, the meat or milk has long since ceased to be wholesome. We must, therefore, if any steps are to be taken, endeavor to prevent the contagious principle entering the meat or milk consumed by the public through the purification of it at the source of supply.

The milk and meat supply of this State comes to us from two sources,—that derived from animals located within the Commonwealth and that derived from animals without its borders. The commission has no statistics at its command from which it is able to determine the relative proportion of the product from these two sources. So far as the meat product is concerned, in the opinion of this commission and generally of those who have given the matter a special study, while the meat is a source of danger, it is not as important a source as the milk.

In the case of meat, a large proportion of that which comes from without the State comes from large slaughtering establishments which are under the supervision of the inspectors who work under the authority of the Bureau of Animal Industry of the United States Department of Agriculture;* and, so far as it is derived from within this State, it is made subject to examination by inspectors appointed by cities and towns; so that, regarding the product

* In this connection, a remark made by the Secretary of Agriculture, in his recent report to the president of the United States, is not without value for us. He says: "Meat and animal inspection must become of great sanitary value to consumers at home and to interstate and foreign commerce, provided State and municipal authorities intelligently and diligently co-operate with those of the national government. If such co-operation fails, then the people of the great killing centres become the consumers of all rejected animals and meats. The protection of domestic health will be much improved when each purchaser of meats demands and insists upon that which has been governmentally inspected and certified."

coming from our own licensed slaughter houses, it may be fairly well relied upon as being free from tuberculous taint.

It should be stated that slaughter houses still exist, in portions of the Commonwealth, which have failed to obtain the licenses provided by law, where this business is being conducted and the product disposed of in the market without being inspected. This evil is one that will become less and finally be corrected under the operation of the present law.

It is further possible that a certain small proportion of tuberculous meat may find its way into the market by reason of the animals not being inspected at the time of slaughter, because the owner had received a certificate of soundness of such animal, based upon physical examination, within six months prior to the slaughter; and, finally, in addition to this, there is undoubtedly a small amount of tuberculous meat now finding its way into our markets that comes from animals which have been killed just without our borders in the neighboring states.

The milk now being sold in Massachusetts is derived from home herds and from herds which are maintained outside the limits of the State, the product of which is regularly marketed in Massachusetts. Inasmuch as it is impracticable to see that the milk supply itself is pure except by purifying the animals from which it is derived, it follows that there is no practicable means whereby this State can assure the consumers that milk coming from without its limits is free from the contagious principle by any prescribed system of examination relating to the cows from which it is derived, because the Commonwealth has no jurisdiction over those animals. The only practicable method of overcoming this difficulty is to provide, in some form, that milk shall not be delivered in this State except that coming from animals which have been properly shown to be free from disease.

On Nov. 20, 1894, the Board, in its circular letter of that date, which will be found printed on page 186 of the report of that year, made the following declarations:—

First.—That tuberculin is a reliable agent for determining the presence of tuberculosis in cattle.

Second.—That tuberculin, properly prepared and carefully handled, can have no injurious effect upon healthy animals.

Third.—That it is the only known means whereby a positive diagnosis can be made in the earlier stages of the disease.

This declaration was based upon the experience which members of the commission had had up to that time, covering many hundreds of tests. Since Nov. 20, 1894, this Board has made 26,958 tests, and, as a result, it is prepared to reaffirm every word and line contained in that declaration.

We have already shown in detail, in other portions of this report, the results obtained by the commission from the use of tuberculin the present year. This experience shows that it is a remarkably accurate agent when properly applied under well-known necessary conditions. There is no other known means of diagnosing bovine tuberculosis except what is known as the physical examination. Such an examination is utterly unreliable, and has been discarded by this commission as an ultimate test, as it has by all other commissions and scientific men working in this direction throughout the known world. The experience of the commission for the past year has shown that physical examination would have failed to detect the presence of the disease in the vast majority of the animals tested upon voluntary request; and, on the other hand, tuberculin showed that the disease was not present in more than 55 1-2 per cent. of the animals which had been quarantined as suspicious upon a physical examination by the local inspectors. Such is the opinion of this Board, based upon its experience.

That a similar result has been reached by many others working in the same direction and with the same agent, the following extracts will show.

Resolution passed by the Association of Cattle Commissions of the New England States, July 25:—

As a body, we heartily endorse and recommend the use of tuberculin as being the only reliable agent now known for the detection of tuberculosis in cattle. We also further believe that no harm whatever comes from its use in animals that are free from tuberculosis. No physical examination should be regarded as being reliable unless it has been accompanied by a properly made test with tuberculin. We further believe that no test should be made by other than practised competent persons, who will carefully follow all the known requirements for obtaining correct results.

At the annual meeting of the State Board of Agriculture, held at Dalton in December, the following recommendations were made:—

First.—That, subsequent to June 1, 1896, the use of tuberculin as a diagnostic agent shall be applied to all herds in which one or more tuberculous animals have been found.

Second.—All owners of herds in which one or more tuberculous animals have been found shall be required to make such reasonable changes in their stables and stable management as shall seem necessary to secure to their cattle the conditions known to be essential to health.

Third.—Full compensation for an animal or animals found to be tuberculous upon any inspection subsequent to the first shall be allowed only when it shall appear that the owner has faithfully endeavored to carry out the changes which he has been desired to make.

In 1894 the State of New York appointed a special commission to investigate tuberculosis in cattle in that State, which commission made a report in the latter part of January, 1895, containing several recommendations as to the best method to be pursued in the eradication of that disease, all of which are based upon the tuberculin test.

In a report made by that commission, on October 29, 1895, the following paragraph occurs :

The efficacy of tuberculin as a diagnostic agent is of incalculable benefit, although, if followed without due caution, in some cases it will lead to error. By the use of this agent some animals advanced in the disease fail to show any reaction, and in other cases animals not as extensively affected will show higher reaction. In the examinations thus far made not an error has occurred, as proven by the autopsies.

There can be no doubt that the systematic inspection of milch cows and the killing of cattle undoubtedly affected will prevent a large loss to the dairymen and lead to a great saving of infant life.

Bulletin No. 29 of the Pennsylvania State College Experiment Station, issued in October, 1895, says :

All those who have used tuberculin in the United States for the diagnosis of bovine tuberculosis, and have published their work, including Drs. Law, Curtice, Conrow, Faust, Russell, Rice, Schroder, Niles, Eves and Pearson, have expressed themselves as extremely well pleased with the results with this agent.

Remarkable to note, the occasional and scattered opposition to the use of tuberculin comes from those who have never employed it for the diagnosis in cattle.

In the Year Book of the United States Department of Agriculture for 1894, on page 324, occurs the following :

The disease in the early stages can be detected only with the aid of tuberculin. In the advanced stages most careful observers will probably recognize it, or at least suspect it, without the use of tuberculin. Tuberculin, therefore, has become indispensable in giving the owner an idea of the inroads the disease is making in his herd, and in distinguishing the infected from the non-infected. Tuberculin reveals to us all stages, from the earliest, most insignificant changes, when the animal is outwardly entirely well, to the gravest and most dangerous types of the disease. Tuberculin does not, as a rule, discriminate between these cases. Hence those who use it as a guide must not be disappointed when, after having killed the suspected ones, they find that many are in the earlier stages of the malady. Tuberculin, moreover, is not infallible. A small percentage of cases of disease is not revealed by it. On the other hand, a sound animal now and then gives the reaction for tuberculosis. These lapses must be borne in mind in using tuberculin. In spite of them, however, tuberculin must be considered as of great value in revealing tuberculosis not recognizable by any other means during life.

In the report on tuberculosis in cattle, presented to the city council of Minneapolis, Minn., H. N. Avery, A. M., M. D., commissioner of health, states as follows :

During the past few years the investigation of the prevalence of tuberculosis among dairy herds has been extensively carried on both in foreign countries and in the United States. In this country the work has been in charge of the Bureau of Animal Industry, the cattle commissions, boards of health and experiment stations of the several states. The results of such investigations have demonstrated the prevalence of the disease to an extent which is positively alarming in many herds, and its existence in a greater or less degree in a large proportion of the herds which have been examined. The diagnosis of this disease by ordinary methods being in many cases impossible, a more trustworthy method has been sought and found. In 1880, Koch, who discovered the bacillus or germ of the disease, described the preparation and uses of a fluid which he had prepared,

and which has since come to be known as Koch's lymph or tuberculin. Tuberculin consists of the concentrated, sterilized liquids in which the bacillus tuberculosis has been grown. It contains no living bacilli, but it does contain the chief poisons which are produced within the tuberculous body, and which bring about all the diseased processes in such body. The diagnostic value of tuberculin depends upon the fact that, when injected into the body of a tuberculous animal, it increases the activity of the disease process in the tubercular tissues and thus affects the whole body, producing a reaction or rise of temperature in a marked degree. When injected into a healthy animal no reaction occurs, no decided rise of temperature results, and no effect is produced upon the health of the animal, either immediately or subsequently, although with tuberculous animals it in many cases accelerates the progress of the disease. The tuberculin test has been applied in many thousand cases, and the more extensively it has been used the more thoroughly it is appreciated for its diagnostic value and for the reliability of its indications when intelligently applied by skilful veterinarians.

The results of the use of tuberculin as a test in dairy herds in and about Minneapolis have been such as to demonstrate its existence in such a proportion of cattle examined as to justify the continuance of such investigation in a thorough manner, with a view to the eradication of the disease.

In pursuance of this recommendation, an ordinance was passed by the Board of Health of the city of Minneapolis, under the provisions of the State law, forbidding the offering for sale of milk except from herds that are certified by an inspector to be free from disease. This ordinance provides:—

It shall be the duty of the commissioner of health to cause to be made by the veterinarian of the department of health, or under his direction and supervision, such an examination of each and every animal producing milk for sale or consumption within the city of Minneapolis, and belonging to or controlled by such applicant, for the presence or absence of tuberculosis and other contagious and infectious diseases as shall be prescribed by the department of health; and the branding or tagging of each and every animal thus examined in such a manner as may be directed by the department of health,—and the department of health requires that such inspection shall be based upon the tuberculin test, being the only reliable test.

On September 12 the United States Veterinary Medical Association, assembled at Des Moines, Ia., passed the following resolutions, which were adopted by a unanimous vote :—

Whereas, Tuberculosis is an infectious disease, dangerous alike to man and the lower animals; and *whereas*, scientific experimentation has demonstrated the possibility of transmitting the disease through the dairy and other animal products from tuberculous animals; and *whereas*, the extensive use of tuberculin as a diagnostic agent has thoroughly demonstrated its high value for that purpose, further be it

Resolved, That, in the judgment of the United States Veterinary Medical Association, it is the duty of sanitary boards and other health officers to employ all practical methods calculated to restrict this disease.

Resolved, That we regard the tuberculin test as the only reliable means now known to the scientific world for detecting obscure cases of tuberculosis in the living subject, and that it is a reliable test when performed under proper and well-known necessary conditions.

It is further *Resolved*, That reliance upon the physical examination of animals for the existence of tuberculosis is unwise and unwarranted in the present day.

Prof. H. D. Gill, veterinarian to the New York City Board of Health, in a recent paper read before the section of public health of the New York Academy of Medicine, November 8th, stated, among other things, as follows :—

The identity of bovine and human tuberculosis being placed beyond doubt by the numerous examples of contagion, by a similarity in the anatomical alterations of these diseases, and by the existence in both of the same specific bacillus, the question of consumption of the milk of tuberculous animals becomes of the greatest importance from the stand point of public hygiene. How widespread it is can be learned, in my opinion, only when every animal has been subjected to the tuberculin test; and until such investigation has been made, the only safeguard for the milk supply of New York is limitation to that coming from herds which have been so tested. Too great emphasis can hardly be laid on the clearly demonstrated fact that tuberculosis may exist in cattle when they present absolutely no clinical symptoms of disease. Danger is not to be especially looked for when an animal presents the classical

symptoms of emaciation, cough, etc. It is when the animal is in good flesh, has a healthy skin, and nevertheless has one or more foci of disease.

Turning now from the opinions as expressed by boards and authorities throughout the United States, some of which have been above quoted, we find that the same experience has been met abroad. At the last European Veterinary Congress, assembled at Berne, Switzerland, in September, the following resolutions were passed :—

Tuberculin is a very valuable diagnostic agent, and can yield the greatest assistance in combating tuberculosis. There is no reason for objecting to its general application on the ground that it may aggravate pre-existing tuberculous lesions.

The congress expresses the desire that governments shall order the employment of tuberculin in herds in which the existence of tuberculosis has been established.

Tuberculin is a reliable diagnostic agent.

There need be no fear that tuberculin, properly used, will cause generalization of pre-existing disease.

All tuberculous herds should be tested with tuberculin, and the tuberculous and healthy animals separated.

The last International Congress of Hygiene, held in September, at Buda Pesth, after hearing the report of the committee appointed two years before for the consideration of this question, reached the following conclusion, which was given out by the presiding officer :—

The committee are agreed that tuberculin is a very valuable assistant in the discovery of tuberculosis. The occasional failures in diagnosis for which it is responsible are without practical significance.

In Dieckerhoff's "Lehrbuch der speciellen Pathologie und Therapie für Thierärzte," published in 1894, and generally recognized as the most reliable work on veterinary practice, this statement occurs :—

It is for the owner's interest to have his herd tested with tuberculin, in order to discover the suspicious animals, so that they may be separated and placed in another stable, and slaughtered as soon as possible.

A law is now pending in France which will make the use of tuberculin compulsory in all herds in which tuberculosis has been discovered.

Under the provisions of this law, every beast presenting clinical signs of disease is to be slaughtered; any suspicious beast showing tuberculosis is to be subjected to the tuberculin test, and slaughtered if diseased; all cattle that have cohabited with an animal found to be tuberculous are to be subjected to the tuberculin test; one-half to one-fourth compensation is to be paid, according to circumstances.

In presenting this bill, the minister explains that he desires to encourage the owners of cattle to assist the authorities in attempting to suppress a disease dangerous to human life, and that the differences as to compensation are arranged accordingly.

The city of Rome is putting in force regulations in relation to the health of milch cows and other animals which supply milk to its residents, which provide, in substance, that—

All milch cows and other animals which supply milk in the suburbs and Agro Romano will be subjected to a rigorous examination by the municipal surgeons. To this purpose notice of every animal introduced into the Commune must be given to the health authorities before the milk can be sold, and it is then placed under the inspection of the veterinary surgeon.

When the animal is healthy and capable of furnishing good milk, it will be marked in the horn and a special license given to the owner. These animals will be inspected every year, in the months of April, May and June, and also on any other occasion that the authorities may deem necessary. The cow suspected of tuberculosis will be treated with tuberculin at the expense of the owners, and those diseased will be slaughtered.

These regulations have recently been extended to embrace all the surrounding country, which will prevent the owners in Rome proper from sending tuberculous cows into the adjoining country, where they might continue to be the source of milk supply for the city.

Numerous other quotations might be inserted of the doings of public authorities and the opinions of experts upon the matter of the reliability of tuberculin; but a sufficient number have been cited to show that everywhere it is the consensus of opinion that in tuberculin a reliable diagnostic agent for the detection of tuberculosis has been found, and that with its discovery an entirely new phase has been put upon the problem of the eradication of this

disease in cattle, and with it the elimination of this source of danger to the public health.

We assume, therefore, that tuberculin is a reliable agent for the detection of bovine tuberculosis.

The consideration of the question as to whether or not the use of tuberculin accelerates the disease already existing in the animal is of no importance, because, under the law of this State and of every other State where any action is being taken, the authorities destroy the animal where the disease is found, and this is the object primarily sought to be accomplished by the application of the test. Unless this policy is pursued, the disease can never be eradicated.

This being so, no evil can arise under any aspect in applying the tuberculin test to animals which are in fact diseased. Inasmuch as authorities are united in the opinion that the presence of the disease cannot be detected until after the tuberculin is applied, in the vast majority of cases, we are necessarily not in position to apply the tuberculin only to diseased animals; and it must necessarily follow that in the adoption of this test a certain proportion of healthy animals must be subjected to the influence of tuberculin, in endeavoring to ascertain by its use which of them are diseased.

The only material question in this connection, therefore, is, does the use of tuberculin in any way injure healthy animals? That tuberculin cannot produce the disease of tuberculosis is a matter of absolute certainty. This was thoroughly discussed in the report of this commission last year.* As bearing upon this matter, we desire to call the attention of your honorable body to the fact that in the following cases herds which have been once tested and the premises properly disinfected by the members of this Board have been retested after periods as shown in the table, and found to be entirely free from tuberculosis, which shows not only that the test is reliable, but also that it did not produce the disease.

*Nor has it ever been shown that the use of tuberculin has been productive of any other ill results in animals to which it has been administered; while, on the other hand, authority after authority have declared that in their experience it has never produced ill results when administered to other than tuberculous animals.

Number.	FIRST TEST.			SECOND TEST.		
	Date.	Number animals.	Number Tuberculous.	Date.	Number animals.	Number Tuberculous.
1	Feb. 4, 1894.	120	18	July 12, 1895.	80	-
2	Oct. 1, 1894.	80	36	Sept. 19, 1895.	80	-
3	April 13, 1894.	27	16	April 15, 1895.	9	-
4	June 21, 1894.	23	6	Dec. 27, 1895.	23	-
5	May 16, 1895.	51	7	Dec. 27, 1895.	53	-

The commission has endeavored during the past year to carefully observe the effect of the use of this diagnostic agent upon the healthy animals, and no case has been brought to the attention of the commission in which any injury could be directly traced to the use of tuberculin. Perhaps no better evidence can be obtained of the general opinion that tuberculin produces no injurious effect upon healthy animals than the fact that in the open markets of this Commonwealth animals which have been so tested sell more readily in competition with untested animals, and at, if anything, better prices.

Further, but few thoroughbred or pedigree animals can be sold to-day unless such animals are accompanied by a certificate of having successfully passed the tuberculin test; and finally, as is shown by the recent experience of this commission, the greatly increased and increasing number of applications for the test, coming from all parts of the State.

SANITATION.

The matter of the sanitary condition of stables and premises is an important one in connection with the consideration of the general health of animals, and is particularly so in all questions concerning the eradication of tuberculous disease. The question of whether an animal will become affected with tuberculosis depends upon two conditions: first, the presence of the germ; second, a receptive condition of the individual which will enable any germs which may obtain lodgment to develop and multiply and thus produce the disease.

In order to suppress tuberculosis, it is necessary not only to destroy the diseased animals, but to remove other sources of

contagion by means of cleansing and disinfecting stables; and also to see that the animals are kept under such proper sanitary conditions as will render them practically immune to contagion which may be presented to them.

In view of the great prevalence of this disease throughout the neat stock of the Commonwealth, the commission feels that the first important step is to destroy the main sources of contagion,—that is, the diseased animals,—and that, upon this being done, the premises should be disinfected and otherwise put into proper sanitary condition. It is useless to prescribe sanitary regulations and go through the expensive process of properly cleansing and disinfecting stables until all diseased animals within the enclosure have been picked out and removed. Therefore the matter of sanitation becomes especially important in cases where herds have been examined by the Board and the disease removed.

In all cases where entire herds have been examined by this commission upon voluntary request, the owner has agreed that he “will observe the sanitary regulations prescribed by the Board of Cattle Commissioners, and will not introduce into such herd any animals without having them first subject to the tuberculin test.” After the examination of the herd has been completed, and the diseased animals removed, the Board has given directions for the proper disinfection of the premises, as follows: All animals are to be removed from the barn; all woodwork with which they have been in direct or indirect contact is to be thoroughly scraped; all floors, ceilings and walls to be sprinkled with water and thoroughly swept; after this has been done, live steam, or failing that, boiling water, is to be applied freely to all parts with which the animals have been in contact; this having been done and allowed to dry, the premises are to be again scraped and swept; the buildings are then to be closed as tightly as possible, and subjected to the effects of chlorine gas. This gas can be easily made by treating chloride of lime with crude sulphuric acid diluted with three or four parts of water, in sufficient quantities to thoroughly fill all parts of the building, which is then left closed for twelve hours. Following this, all the woodwork is to be treated with whitewash to which has been added a solution of bi-chloride of mercury, one part of mercury to one thousand parts of water, the application to be made by means of a force pump.

When this is dry the premises are ready to be used again. It is desirable that this whitewash should be repeated at convenient intervals, for two or three times.

It is the intention of the Board to continue the work of the examination of stables, such as has already been inaugurated, and to furnish to parties interested instructions in regard to what sanitary conditions are deemed advisable by the Board, and as to how these ends may be accomplished.

To this end owners of stock are advised that any building used as a stable for cows should be properly lighted and ventilated; should have a tight floor and roof; good drainage connecting wherever possible with a practicable sewer pipe and supply of pure water and not less than one thousand cubic feet of air space for each animal; that manure should not be allowed to accumulate in the neighborhood; that yards surrounding buildings where cows are kept should be well drained, free from standing water and filth; that barns should be swept once at least each day, and kept as clean as possible, and the floors should be sprinkled before being swept; that no hogs or manure should be kept in the cellars under cow stables; that animals kept for the production of milk should not be fed upon swill of any kind.

The commission would also advise that, as far as practicable, consumptive people should not be allowed to come in any way in contact with neat cattle; although in this connection it should be stated that modern investigation tends more and more to show that, while the danger of the transmission of tuberculosis from the lower animals to man is great, the danger of transmission in the other direction is not so great as has been supposed.

Laboratory experiments indicate that the bacillus from the human subject is much less virulent than that from the bovine. Comparative microscopical examinations show clearly the rugged, hardy appearance of the bovine, as compared with the slender, bent bacillus of man; and the growth of the cultures together in the same media have demonstrated that the bacillus of the bovine kills out the bacillus from the human subject.

In 1864 Villimen, and in 1869 Klebs, produced tuberculosis in calves by injecting tuberculous masses from man into their peritoneal cavity; but these experiments are directly offset by those conducted by Prof. Theobald Smith, who has recently informed us

that with the pure culture of the bacilli, procured from the animal pet of a consumptive man, he had been unable, by injection into the peritoneal cavity of bovines, to reproduce the disease; and, while tuberculisoidin and other antitoxines have marked beneficial effect upon cases of the disease, which resulted from the inoculation of the bacilli from man, it had no such salutary effect when injected into animals which had derived the disease from the bovine virus. This was confirmed by experiments on three guinea-pigs which had been inoculated with bovine virus, and were afterward treated with one of these preparations furnished by Dr. E. Klebs. After the disease was well advanced the treatment had not the slightest effect upon its progress.

NOTICE OF QUARANTINE.

TO WHOM IT MAY CONCERN.

Public notice is hereby given, that in consequence of the prevalence of tuberculosis among Massachusetts cattle, as disclosed by the official reports of their authorities, supplemented by post mortems held in Maine of cattle purchased in that state for dairying and breeding purposes, the Cattle Commissioners of the State of Maine believe that the public health of its citizens and the welfare of this commonwealth demand that a rigid quarantine (against all cows whether in milk or dry, and all bulls for breeding purposes) be maintained on and after January 1, 1892, until further notice, and all such cattle entering the State of Maine thereafter will be subject to quarantine at the owner's expense; provided, however, that the above regulations shall not apply to Western cattle coming through Massachusetts into Maine for the purpose of slaughter.

The attention of all persons is directed to sections 2, 3, 4, 5 and 7, of chapter 138, of the Public Laws of Maine, 1887, applying to cattle affected with contagious diseases, and which will hereafter be rigidly enforced.

[Signed] JOHN W. DEERING, SACO, *President*.
F. O. BEAL, BANGOR, *Treasurer*.
GEO. H. BAILEY, DEERING, *D. V. S.*

A quarantine station will be provided near Morrill's Corner, Deering, where all cattle brought into Maine in violation of the above notice will be kept until discharged, at the expense of the owner or owners; and particular attention is called to the full reprint of the law relating to contagious diseases upon the following pages of this circular-letter, which will be rigidly enforced after this date.

PORTLAND, January 1, 1892.

NOTICE OF QUARANTINE.

The Cattle Commissioners of the State of Maine, having found from recent experience that it has become absolutely necessary to supplement our former notice of quarantine issued January 1st, 1892, so that it shall include not only Massachusetts, but all other states, order that no cattle for dairy or breeding purposes shall be brought into this State either by road, water, railroad or other conveyance until further notice; and all such cattle entering our State, without a permit signed by some member of our Board will be subject to quarantine at the owner's expense, and the attention of all persons is directed to chapters 177 and 194 of the Public Laws of Maine, which will hereafter be rigidly enforced.

JOHN W. DEERING, SACO, *President.*

F. O. BEAL, BANGOR, *Treasurer.*

GEO. H. BAILEY, DEERING, *D. V. S.,*
State Veterinary Surgeon.

LAW RELATING TO CONTAGIOUS CATTLE
DISEASES AS AMENDED IN 1889.

CHAPTER 177.

An Act to Extirpate Contagious Diseases Among Cattle.

Be it enacted by the Senate and House of Representatives in Legislature assembled, as follows :

SECT. 1. That for the purpose of facilitating and encouraging the live stock interests of the State of Maine, and for extirpating all insidious, infectious and contagious diseases, now or that may be among cattle and other live stock, and especially tuberculosis, the governor of the State is hereby authorized and required, immediately after the passage of this act, to appoint a board of cattle commissioners consisting of three persons of known executive ability, who shall be charged with the execution of the provisions of this act, and who shall be known and designated as the State of Maine Cattle Commission and whose powers and duties shall be those provided for in this act, and whose tenure of office shall be at the option of the governor. The compensation of said commissioners shall be at a rate of three dollars per day during the time they are actually engaged in the discharge of their duties as commissioners. The said commissioners shall respectively take an oath to faithfully perform the duties of their office, and shall immediately organize as such commission by the election of one of their number as president thereof, and proceed forthwith to the discharge of the duties devolved upon them by the provisions of this act.

SECT. 2. That it shall be the duties of the said commissioners to cause investigation to be made as to the existence of tuberculosis, pleuro-pneumonia, foot and mouth disease, and any other infectious or contagious diseases. And such commissioners or their duly

constituted agent are hereby authorized to enter any premises or places, including stock yards, cars and vessels within any county or part of the State in or at which they have reason to believe there exists any such diseases, and to make search, investigation and inquiry in regard to the existence thereof. Upon the discovery of the existence of any of the said diseases, the said commissioners are hereby authorized to give notice, by publication, of the existence of such disease, and the locality thereof, in such newspapers as they may select, and to notify in writing the officials or agents of any railroad, steamboat or other transportation company, doing business in or through such infected locality, of the existence of such disease; and are hereby authorized and required to establish and maintain such quarantine of animals, places, premises or localities as they may deem necessary to prevent the spread of any such disease, and also to cause the appraisal of the animal or animals affected with the said disease, in accordance with such rules and regulations by them as hereinafter authorized and provided, and also to cause the same to be destroyed, and to pay the owner or owners thereof one-half of their value, as determined upon the basis of health before infection, out of any moneys appropriated by the legislature for that purpose; provided, however, that no appraised value shall be more than two hundred dollars for an animal with pedigree recorded or recordable in the recognized herd-books of the breed in which the animal destroyed may belong, nor more than one hundred dollars for an animal which has no recordable pedigree; provided, further, that in no case shall compensation be allowed for an animal destroyed under the provisions of this act, which may have contracted or been exposed to such disease in a foreign country, or on the high seas, or that may have been brought into this State within one year previous to such animals showing evidence of such disease; nor shall compensation be allowed to any owner who in person, or by agent, knowingly and wilfully conceals the existence of such disease, or the fact of exposure thereto in animals of which the person making such concealment, by himself or agent, is in whole or part owner.

SECT. 3. That the said commissioners are hereby authorized and required to make record, and publish rules and regulations providing for and regulating the agencies, methods and manners of conducting, and the investigations aforesaid, regarding the existence of said contagious diseases; for ascertaining, entering and searching

places where such diseased animals are supposed to exist; for ascertaining what animals are so diseased, or have been exposed to contagious diseases; for making, reporting and recording descriptions of the said animals so diseased or exposed and destroyed, and for appraising the same, and for making payment therefor; and to make all other needful rules and regulations which may, in the judgment of the commissioners, be deemed requisite to the full and due execution of the provisions of this act. All such rules and regulations, before they shall become operative, shall be approved by the governor of Maine and thereafter published in such manner as may be provided for in such regulations; and after such publication said rules and regulations shall have the force and effect of law, so far as the same are not inconsistent with this act and other laws of the state, or United States.

SECT. 4. That any person or persons who shall knowingly and wilfully refuse permission to said commissioners, or either of them, or their duly constituted agent to make, or who knowingly and wilfully obstructs said commissioners, or either of them, or their duly constituted agent in making all necessary examinations of, and as to animals supposed by said commissioners to be diseased as aforesaid, or in destroying the same, or who knowingly attempts to prevent said commissioners, or either of them, or their duly constituted agent from entering upon the premises and other places hereinbefore specified where any of said diseases are by said commissioners supposed to exist, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, or of either of the acts in this section prohibited, shall be punished by fine not exceeding one hundred dollars, or by imprisonment, not exceeding ninety days, or by both fine and imprisonment, at the discretion of the court.

SECT. 5. That any person who is the owner of, or who is possessed of any interest in any animals affected with any of the diseases named in section two of this act, or any person who is agent, common carrier, consignee, or otherwise is charged with any duty in regard to any animal so diseased, or exposed to the contagion of such disease, or any officer or agent charged with any duties under the provisions of this act, who shall knowingly conceal the existence of such contagious disease, or the fact of such exposure to said contagion, and who shall knowingly and wilfully fail, within a reasonable time, to report to the said commissioners their knowledge or

their information in regard to the existence and location of said disease, or of such exposure thereto, shall be deemed guilty of a misdemeanor, and shall be punishable as provided in section four of this act.

SECT. 6. That when the owner of animals, decided under the provisions of this act, by the proper authority, to be diseased, or to have been exposed to contagion, refuses to accept the sum authorized to be paid under the appraisement provided for in this act, it shall be the duty of the commissioners to declare and maintain a rigid quarantine as to the animals decided, as aforesaid, to be diseased or to have been exposed to any contagious or infectious disease, and of the premises or places where said cattle may be found, according to the rules and regulations to be prescribed by said commissioners, approved by the governor, and published as provided in the third section of this act.

SECT. 7. That no person or persons owning or operating any railroad, nor the owner or owners, or masters, of any steam, sailing, or other vessels, within the state, shall receive for transportation, or transport from one part of the state to another part of the state, or to bring from any other state or foreign country any animals affected with any of the diseases named in section two of this act, or that have been exposed to such diseases, especially the disease known as tuberculosis, knowing such animals to be affected, or to have been so exposed nor shall any person or persons, company or corporation, deliver for such transportation to any railroad company, or to the master or owner of any vessel, any animals, knowing them to be affected with, or to have been exposed to, any of said diseases; nor shall any person or persons, company or corporation, drive on foot, or transport in private conveyance, from one part of the state to another part of the state, any animal, knowing the same to be affected with, or to have been exposed to, any of said diseases. Any person or persons violating the provisions of this section, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by fine not exceeding the sum of two hundred dollars, or by imprisonment not exceeding six months, or by both fine and imprisonment.

SECT. 8. That it shall be the duty of the several county attorneys to prosecute all violations of this act, which shall be brought to their notice or knowledge by any person making the complaint under oath; and the same shall be heard in any supreme judicial

court having jurisdiction in the county in which the violation of this act has been committed.

SECT. 9. That the said commissioners are hereby authorized to appoint or elect one of their number as secretary of said board, who shall receive a reasonable compensation for his services during the time in which, under the provisions of this act, the services of the said commissioners shall be required. The said commissioners shall make and preserve a full record of all rules and regulations promulgated under the provisions of this act, of all payments and expenses hereunder incurred, and all other transactions performed by said commissioners in the discharge of their duties as herein provided; and the said commissioners shall, on or before the first Wednesday in January of each year, during their continuance in service, and at other times as they may deem conducive to the public interests, or as they may be required so to by the governor of state, report to said governor full and accurate accounts of their expenditures, and other proceedings under the provisions of this act, and of the condition of said diseases, if any, in the state, to be communicated by him to the legislature. Whenever the functions of said commission shall be suspended or terminated, it shall turn over to the secretary of state, all its books, papers, records, and other effects, taking his receipt therefor, and he shall remain the custodian of the same until such time as the functions of said commission may be restored.

SECT. 10. That the commissioners shall have power, and are hereby authorized to employ skilled veterinarians, and such other agents and employes as they may deem necessary to carry into effect the provisions of this act, and to fix the compensation of the person or persons so employed, and to terminate such employment at their discretion; and they are authorized out of the moneys by this act appropriated, to make such expenditures as may be needed for the actual and necessary traveling expenses of themselves and their said employes, stationery, expense of disinfecting premises, cars and other places, destroying diseased and exposed animals, and paying for the same, and such other expenses and expenditures as they may find to be actually necessary to properly carry into effect the provisions of this act.

SECT. 11. That the moneys appropriated by this act shall be paid over to the secretary of said commission, from time to time, as the

same may be found to be needed, upon requisition made by the said commissioners, and shall be disbursed by the said secretary of said commission only upon vouchers approved by said commissioners or a majority of them. The said secretary shall before entering upon the duties of his office, take an oath to faithfully discharge the duties thereof, and shall enter into a bond to the State of Maine, with sureties to be approved by the treasurer of State, in such sum as he may designate, for the faithful accounting of all moneys received by the said secretary of the commission, under the provisions of this act.

SECT. 12. That for the purpose of carrying into effect the provisions of this act, the sum of five thousand dollars, or so much thereof as may be necessary, is hereby appropriated out of any moneys in the treasury not otherwise appropriated.

SECT. 13. That all acts and parts of acts inconsistent or in conflict with the provisions of this act, be, and the same are hereby repealed.

Approved February 14, 1889.

**LAW RELATING TO CONTAGIOUS CATTLE
DISEASES AS AMENDED IN 1893.**

CHAPTER 194.

An Act to amend an act entitled "An Act to extirpate Contagious Diseases Among Cattle."

Be it enacted by the Senate and House of Representatives in Legislature assembled, as follows :

SECT. 1. Section one of chapter one hundred and seventy-seven of public laws of eighteen hundred and eighty-nine, is hereby amended by striking out the words, "and other live stock" in the fourth line, and inserting instead the words 'horses and sheep,' so that said section as amended, shall read as follows :

SECT. 1. That for the purpose of facilitating and encouraging the live stock interests of Maine, and for extirpating all insidious, infectious and contagious diseases, now or that may be among cattle, horses and sheep, and especially tuberculosis, the governor of the state is hereby authorized and required, immediately after the passage of this act, to appoint a board of cattle commissioners consisting of three persons of known executive ability, who shall be charged with the execution of the provisions of this act, and who shall be known and designated as the State of Maine Cattle Commission, and whose powers and duties shall be those provided for in this act, and whose tenure of office shall be at the option of the governor. The compensation of said commissioners shall be at the rate of three dollars per day during the time they are actually engaged in the discharge of their duties as commissioners. The said commissioners shall respectively take an oath to faithfully perform the duties of their office, and shall immediately organize as such commission by the election of one of their number as presi-

dent thereof, and proceed forthwith to the discharge of the duties devolved upon them by the provisions of this act.'

SECT. 2. Section two of said act is hereby amended by striking out the word "two" in the twenty-ninth line and inserting instead thereof the word 'one;' and by striking out the words 'one hundred' in the thirtieth and thirty-first lines and inserting instead thereof the word 'fifty;' also by striking out the word "one" in the thirty-sixth line, and inserting instead thereof the word 'three;' also by inserting after the word "disease" in the thirty-seventh line the words 'and the owner or owners shall furnish satisfactory evidence as to the time such animal or animals shall have been owned in the state,' so that said section two as amended, shall read as follows :

'SECT. 2. That it shall be the duties of the said commissioners to cause investigation to be made as to the existence of tuberculosis, pleuro-pneumonia, foot and mouth disease, and any other infectious or contagious diseases. And such commissioners or their duly constituted agent, are hereby authorized to enter any premises or places, including stock yards, cars and vessels within any county or part of the State in or at which they have reason to believe there exists any such diseases, and to make search, investigation and inquiry in regard to the existence thereof. Upon the discovery of the existence of any of the said diseases, the said commissioners are hereby authorized to give notice, by publication, of the existence of such disease, and the locality thereof, in such newspapers as they may select, and to notify in writing the officials or agents of any railroad, steamboat or other transportation company, doing business in or through such infected locality, of the existence of such disease; and are hereby authorized and required to establish and maintain such quarantine of animals, places, premises or localities as they may deem necessary to prevent the spread of any such disease, and also to cause the appraisal of the animal or animals affected with the said disease, in accordance with such rules and regulations by them as hereinafter authorized and provided, and also to cause the same to be destroyed, and to pay the owner or owners thereof one-half of their value, as determined upon the basis of health before infection, out of any moneys appropriated by the legislature for that purpose; provided, however, that no appraised value shall be more than one hundred dollars for an animal with pedigree recorded or recordable in the recognized herd-

books of the breed in which the animal destroyed may belong, nor more than fifty dollars for an animal which has no recordable pedigree; provided, further, that in no case shall compensation be allowed for an animal destroyed under the provisions of this act, which may have contracted or been exposed to such disease in a foreign country, or on the high seas, or that may have been brought into this State within three years previous to such animals showing evidence of such disease, and the owner or owners shall furnish satisfactory evidence as to the time such animal or animals shall have been owned in the State; nor shall compensation be allowed to any owner who in person, or by agent, knowingly and willfully conceals the existence of such disease, or the fact of exposure thereto in animals of which the person making such concealment, by himself or agent, is in whole or part owner.'

Approved March 10, 1893.