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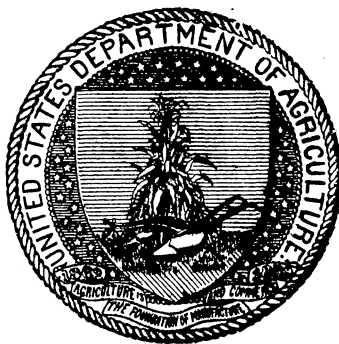
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U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY.

THE TUBERCULIN TEST OF IMPORTED CATTLE.

BY

D. E. SALMON, D. V. M.,
CHIEF OF BUREAU OF ANIMAL INDUSTRY.



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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
Washington, D. C., September 3, 1901.

SIR: I have the honor to transmit herewith a manuscript on "The tuberculin test of imported cattle," and recommend its publication as Bulletin No. 32 of this Bureau.

The necessity of guarding our food-producing animals from the ravages of contagious diseases has been recognized by Congress at various times, but principally in the enactment of the statutes for the establishment of this Bureau and for the prohibition of the importation of animals affected with any disease dangerous to the flocks and herds of this country. The regulations which have been issued in accordance with these statutes require that the tuberculin test shall be applied to all cattle over six months old which are imported into the United States. This test, being in the nature of a restriction upon the importation of cattle, has been the subject of more or less unfavorable comment on the part of importers and their friends, and efforts have been made to secure its abandonment. Under these circumstances it is deemed advisable to present the reasons for requiring the tuberculin test and the importance of this measure as a means for protecting the interests of the farmers of this country.

Respectfully,

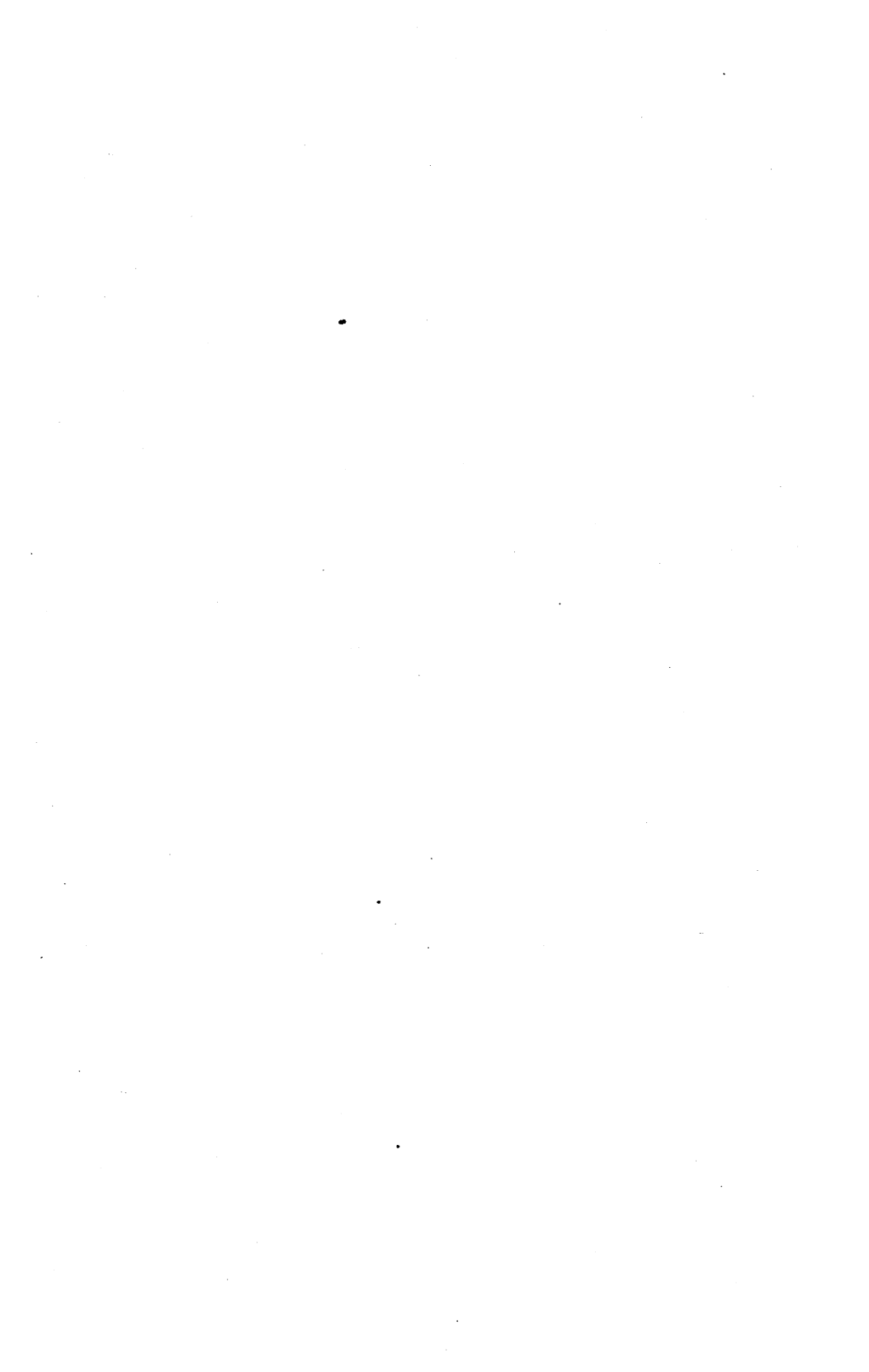
D. E. SALMON,
Chief of Bureau.

Hon. JAMES WILSON,
Secretary.



CONTENTS.

	Page.
Provisions of the regulations	7
Necessity of guarding against diseases.....	7
Danger from tuberculosis	8
Great loss to farmers caused by tuberculosis.....	8
Tuberculosis a menace to our export trade	9
Tuberculin test necessary to discover tuberculosis.....	10
Protection of honest importers	10
The reasonableness of the regulations.....	10
Tuberculosis in beef breeds	11
Loss from diseased breeding stock	15
Danger to the range country	16
Present regulations proper and consistent.....	20



THE TUBERCULIN TEST OF IMPORTED CATTLE.

PROVISIONS OF THE REGULATIONS.

The regulations of the United States Department of Agriculture require that "All cattle over 6 months old imported into the United States after March 1, 1900, which are subject to quarantine and except as otherwise provided shall be tested with tuberculin." With importations from Canada "A certificate for cattle over 6 months old for breeding purposes and for milch cows must also show that they have been submitted to the tuberculin test and found free from tuberculosis, giving the date of testing, with the chart of reaction, and a description of the cattle with age and markings."

The effect of these regulations is that all cattle over 6 months old imported for breeding purposes or for milk production must be tested with tuberculin, and, if found by this test to be affected with tuberculosis, they must be excluded under the act of August 30, 1890, which prohibits the importation of animals "which are diseased or infected with any disease, or which shall have been exposed to such infection within sixty days next before their exportation."

The tuberculin test, being in the nature of a restriction upon the importation of cattle, has been the subject of more or less unfavorable comment on the part of importers and their friends, and efforts have been made to secure its abandonment. Under these circumstances it is deemed advisable to present the reasons for requiring the tuberculin test and the importance of this measure as a means for protecting the interests of the farmers of this country.

NECESSITY OF GUARDING AGAINST DISEASE.

The necessity of guarding our food-producing animals from the ravages of contagious diseases has been recognized by Congress at various times, but principally in the enactment of the statutes for the establishment of the Bureau of Animal Industry and prohibiting the importation of animals affected with any disease dangerous to the flocks and herds of this country. The farmers of the United States are especially fortunate in having a larger investment in farm animals than can be found in any other country, and in the fact that these animals are, on the whole, remarkably free from disease. Several of the

most disastrous plagues of the Old World, such as rinderpest, foot-and-mouth disease, and sheep-pox, have not gained a lodgment in our territory, while most other forms of contagion are either comparatively rare or under control.

In 1884, when the Bureau of Animal Industry was established, our cattle industry was menaced by the existence of contagious pleuropneumonia in several States. That danger was completely removed by the prompt and thorough measures which resulted in the complete eradication of the contagion. This, however, was not accomplished without much bitter opposition and the most determined though misguided efforts to embarrass the work and prevent its success. The wisdom of the policy of eradication has since been amply established, not only by stopping the losses from the disease, but much more by the freedom from panics, quarantines, and other restrictions on account of it and the improved reputation of our exports of cattle and meats which followed.

DANGER FROM TUBERCULOSIS.

At the present time the people of nearly every stock-raising country are alarmed over the prevalence of tuberculosis among their cattle. The disease is recognized as the most widespread, most insidious, and most disastrous of any of the diseases affecting cattle. It is a strictly contagious disease which may spread to nearly every animal in a herd, and not to cattle only, but to swine and most other species of animals. The weight of medical authority favors the conclusion that it may be communicated from animals to man with fatal results. The British Congress on Tuberculosis held, notwithstanding Dr. Koch's view to the contrary, that "in the opinion of this congress medical health officers should use the powers at their disposal and relax no effort to prevent the spread of tuberculosis by milk and meat." This being the case and there being in existence a law prohibiting the importation of diseased or exposed animals, there is every reason why this law should be applied to tuberculosis as well as to other communicable diseases.

GREAT LOSS TO FARMERS CAUSED BY TUBERCULOSIS.

There are other reasons at this time why the spread of tuberculosis should be controlled so far as possible. Some of the States and various municipalities are making tuberculin tests and slaughtering the cattle which they find diseased. This causes considerable loss, inconvenience, and hardship, which fall principally upon farmers. The farmers for the most part introduce the disease into their herds innocently through the purchase of breeding animals for the improvement of their stock. The class of breeding animals which was being imported previous to the requirement of a tuberculin test was very dangerous, nearly one-

half of some lots having been found diseased. The diseased animals in most cases were in good condition of flesh, appeared healthy, and would deceive anyone unless a tuberculin test were made. When we have such a test, remarkable for its accuracy and reliability, there is no good reason why speculators should be allowed to bring in these diseased cattle, which are not wanted in other countries, and scatter them among the breeding herds and dairies of the United States to communicate disease and sooner or later to bring about the destruction of the herd with the heavy loss which it entails. Common honesty should lead those who sell breeding stock to our farmers to take reasonable precautions to insure the healthfulness of the stock which they deliver; but what should be said of the persons who knowingly import and sell cattle affected with a communicable disease like tuberculosis, which may not only destroy their patron's herd, but possibly infect some member of his family as well? The farmers of the United States are entitled to protection from such dangers, and wherever laws exist for this purpose they should be enforced rigidly and impartially.

TUBERCULOSIS A MENACE TO OUR EXPORT TRADE.

Moreover, many of the countries of the world are now adopting measures for suppressing tuberculosis among their native animals and for excluding tuberculous animals from their territory. The United States has already a great export trade in animals and animal products, and our people are endeavoring to increase this trade by adding to it the sale of purebred cattle for improving the herds of South America, Mexico, and perhaps of South Africa. If the proportion of animals affected with tuberculosis in our exported cattle should at any time be found to be increasing we must look for further restrictions and prohibitions upon both our animals and meats. Fortunately our meat-producing animals are to-day the freest from tuberculosis of any highly bred stock which enters the markets of the world; but how long will this continue to be true if we encourage the importation of breeding stock of which 20, 40, or even 60 per cent is diseased when it enters our herds?

Some of the countries to which we are looking as markets for our purebred stock already require that cattle shall pass the tuberculin test before they are admitted. If we enter these markets our cattle must not only be free from tuberculosis when they leave the farm, but also when they arrive in the foreign country. In other words, they must not be infected when they leave home or they will be liable to react by the time they are placed on sale. Cattle which have been for any length of time in a tuberculous herd are liable to have the infection within them ready to develop at any time, and particularly during the exhaustion and exposure incident to an ocean voyage. We should not expect to build up a reputation for our cattle unless we send

healthy animals from healthy herds. Should we not, therefore, adopt the measures which are most essential to secure healthy herds in this country?

TUBERCULIN TEST NECESSARY TO DISCOVER TUBERCULOSIS.

These considerations, the weight of which can not be contested, led to the inclusion of tuberculosis among the diseases for which cattle should be prohibited entry into the United States. But tuberculosis is a disease of a chronic nature which often exists in an animal without causing any symptoms that would lead to its detection. With the animals brought to this country for breeding purposes not one-fiftieth of the tuberculous individuals would be detected without the tuberculin test, and yet many of these are quite badly affected and capable of spreading the disease. Consequently the tuberculin test has been adopted as the only means of guarding against the introduction of tuberculosis with imported cattle.

PROTECTION OF HONEST IMPORTERS.

As it was soon apparent that the unofficial tests made abroad were unsatisfactory, and cattle which were certified as sound reacted when they reached our quarantine stations, an inspector was sent to Great Britain, the country from which most of our purebred stock is purchased, and cattle are now officially tested before they leave the farm where they were raised. An arrangement has also been made to accept the certificates of tuberculin tests issued by the Canadian official veterinarians. This action has almost entirely protected American importers from the condemnation of animals at the time of importation, and at the same time aids them in securing only healthy cattle. For these tests made abroad there is no expense to the importer, as this Government pays the inspector's salary and expenses and the certificates are issued without charge.

It would appear that these efforts to protect our farmers from disease and at the same time to protect the importer from loss would meet with instant and unanimous approval. This, however, is not the case. There is still much dissatisfaction on the part of the few—the very few comparatively—who import cattle or who are indirectly interested in importations.

THE REASONABLENESS OF THE REGULATIONS.

The desirability of the regulations has been denied; the danger from tuberculosis has been questioned; the tuberculin test has been denounced.

It is the object of this bulletin to show the reasonableness of the regulations requiring a tuberculin test for imported cattle, and that the interests of our farmers and cattle raisers demand its continuance.

That the profits of some importers may be reduced is freely admitted; that there may be interference with the plans of breeders and dealers in other countries, some of whom have been prompt to voice their indignation, is not at all unlikely; but the question is larger than this—it is the maintenance of the healthfulness and integrity of our own breeding herds; it is the protection of the public health of this country by avoiding, so far as possible, the propagation of this dangerous disease among our food-producing animals; it is the preservation of our enormous export trade in live animals, meats, and dairy products. What could be more essential than this to the prosperity of our agriculture and the welfare of the nation?

TUBERCULOSIS IN BEEF BREEDS.

It has been asserted, however, that there is no evidence that cattle offered from the beef breeds of Great Britain are dangerous, and it is alleged that this Government has no statistics or facts whatever bearing upon the class of cattle to which the regulation directly applies. That of itself, it is claimed, is a rank injustice upon the face of it.¹ If these charges were correct they would make it appear that the tuberculin test of purebred cattle of the beef breeds coming from Great Britain has not been shown to be necessary—that it is an uncalled for restriction and a rank injustice. The farmers of the United States have a right to know the facts with reference to such an important matter and one which so directly affects their present and future interests. Some details will therefore be presented which, it is believed, will be sufficient to satisfy the unbiased reader.

In 1894 a royal commission was appointed in Great Britain “to inquire into the effect of food derived from tuberculous animals on human health.” This commission had the power to summon witnesses, to take evidence, to examine books, documents, and records, and personally to visit and inspect such places as it deemed expedient. The report, which was made in 1895, after giving the statistics of the Copenhagen slaughterhouses, where 17.7 per cent of the oxen and cows were found tuberculous, and of the Berlin slaughterhouses, where 15.1 per cent of such animals were tuberculous, used the following language:

There do not exist for the United Kingdom any records with which these can be compared. At Copenhagen and Berlin all the meat furnished to the towns is submitted to the inspection of experts. But we have reason to think that the facts about tuberculous animals would exhibit a broad resemblance to the foregoing [i. e., to those of Berlin and Copenhagen] if such records could be obtained—not more different in degree, that is, than the difference seen between the Copenhagen and Berlin records, or than would be explained by variations in the practice of dealing with food animals in one and another country. Such few data as are to be had for the United Kingdom confirm this view. [Report I, p. 11.]

¹ Breeders' Gazette, February 20, 1901.

In 1896 a second royal commission was appointed "to inquire into the administrative procedures for controlling danger to man through the use as food of the meat and milk of tuberculous animals." This commission had equal power to investigate, and in its report, which was made in 1898, it said:

One very serious feature in the distribution of this disease is its prevalence among high-class pedigree stock. [Report I, p. 5.]

The returns from testing British cattle with tuberculin, supplied by the Royal Veterinary College, as stated in March, 1900, showed that among 15,392 animals tested 4,105, or 26 per cent, reacted.¹

During the slaughter of cattle for pleuropneumonia careful examinations of the carcasses were made for tuberculosis. Of 300 head killed near Edinburgh 120, or 40 per cent, were tuberculous.² Of 4,160 killed in England 20 per cent were tuberculous.³ Of one of these lots of cattle (451 animals) the president of the Lancashire Farmers' Association testified that they were fairly representative cattle—cows, heifers, and growing stock—a thoroughly mixed lot. Twenty per cent of these animals had tuberculosis.

Of 398 bovine animals taken haphazard in the city of Manchester 120, or 30 per cent, were tuberculous. Among these animals were 168 cows, 69, or 41 per cent, being tuberculous, and 2 having diseased udders.⁴

The result of testing the Queen's herd at Windsor was that 36 out of 40, or 90 per cent, were found tuberculous.⁵

The investigations made by the British Dairy Farmers' Association deserve particular attention, coming as they do directly from a cattle owners' organization. The council of this association "resolved to submit the general consideration of the question to a committee, with a view to some more definite understanding as to the possible extent to which tuberculosis exists in dairy cattle." The secretary was instructed to write to a number of dairy farmers, being members of the association, asking their cooperation and the use of their herds for the application of the tests. Of the herds offered, 9 were selected containing 461 cows and 12 bulls, and 188 of these animals reacted, being 40.8 per cent. There were among these cattle 335 Shorthorns, of which 119, or 35 per cent, reacted; 67 cross-breds, of which 28, or 42 per cent, reacted; 47 Ayrshires, of which 37, or 80 per cent, reacted.⁶

Another experiment carrying great weight is that of the Cheshire County council. The technical instruction committee set aside £250

¹Jour. of Comp. Path. and Ther., March, 1900, p. 69.

²Rept. Roy. Com., 1895, Pt. I, p. 11.

³Report of Royal Commission, 1898, Pt. II, pp. 47-288.

⁴Report of Royal Commission, 1898, Pt. II, p. 164.

⁵Jour. of Comp. Path. and Ther., 1899, p. 50.

⁶Jour. British Dairy Farmers' Association, September 29, 1899.

to be used by a joint committee from the agricultural and horticultural schools and Worleson Dairy Institute for applying the tuberculin test to their herds. The tests were made February 15, 1899. The results were: Worleson herd of 54 animals, 16 diseased, or 29.6 per cent; agricultural school herd of 17 animals, 4 diseased, or 23.5 per cent. The Worleson herd consisted of Shorthorn cows. In each herd the purebred Shorthorn bull was tuberculous. The results of the tuberculin test were confirmed by the slaughter of the animals and examination of the carcasses.¹

Sir T. D. G. Carmichael, member of Parliament for Midlothian, gave evidence before the royal commission that his Polled Angus herd was tested in the spring of 1895. "The results of the test were fearfully unexpected and alarming." Of 30 tested 13 showed decided reaction—43 per cent. Again, he speaks of having 41 animals tested the same spring and 16 reacted—39.5 per cent.²

Of 80 Shorthorn cattle, intended for export, which were tested 34 reacted, or 42 per cent.³

Of a herd of 25 British Shorthorns recently tested in quarantine 40 per cent were found tuberculous.

The addition of these animals above referred to gives 20,930 head examined and 5,441, or 26 per cent, pronounced tuberculous. And these herds were not selected because they were supposed to be tuberculous, but represent the general cattle stock of the country. These animals included at least 470 head of Shorthorns, of which 170, or 34 per cent, were tuberculous.

To these facts may be added the evidence of Professor Bang that tuberculosis was brought to Denmark in the first half of the nineteenth century by cattle from Switzerland, Schleswig, and England, and that the same thing is now going on in Sweden and Norway, particularly through English cattle.⁴

Also the evidence of M. Sivori, chief of section at the ministry of agriculture, Argentina, who has investigated tuberculosis in that country, and who says that "thirty or forty years ago tuberculosis was unknown in Argentine cattle, and it is still unknown among the native (Criollo) cattle. Its appearance dates from the introduction of pure breeding animals. Statistics prove that tuberculosis is observed among the grades, above all among those of the Durham and less among the Hereford."⁵

And also the evidence of the royal commission of Victoria, Aus-

¹ Journ. of Comp. Path. and Ther., 1899, p. 344.

² Rept. Roy. Com., 1898, II, pp. 288, 289.

³ Journ. of Comp. Path. and Ther., 1899, p. 69.

⁴ Congress for the Study of Tuberculosis in Men and Animals, 4th session, Paris, 1898, p. 247.

⁵ Recueil de Med. Veterinaire, 1899, p. 603.

tralia, and of the New Zealand department of agriculture, showing a large proportion of tuberculous cattle in those colonies, where the disease was almost certainly carried by British cattle.

Returning now to the report of the British royal commission, one witness testified that in his experience the most susceptible cattle were "Shorthorns, Ayrshires, and, following them, Jerseys."¹ Another witness, a salesman and cattle dealer, and vice-president of the National Federation of Butchers and Meat Traders, testified that there is more tuberculosis in purebred pedigree Shorthorns than in other breeds, and that on this account he would never buy fat cattle from certain families of Shorthorns unless they were crossed with some other cattle.²

In justice to Shorthorn cattle it should be said in this connection that they are probably no more susceptible to tuberculosis than are other breeds, but the disease has been allowed to spread in certain herds and families to such an extent as to give a wrong impression concerning the breed as a whole.

In the same manner that tuberculosis has been carried from Great Britain to Denmark, Sweden, Norway, Argentina, and Australia, it has also been taken to Canada. In one herd of imported cattle slaughtered in the Canadian quarantine station, 13 out of 14 animals were found tuberculous. One of the largest Shorthorn herds in Canada was some time ago tested because an animal from it was condemned when offered for shipment to the United States. This herd was found to be very badly affected and an effort is being made to eradicate the disease by the Bang method. A Canadian official publication says of another Shorthorn herd, which at one time had a very high reputation, that when an investigation in regard to tuberculosis was recently made the disease was found among ordinary cattle wherever animals from this herd had been introduced, and that this herd, which had been looked upon as one of the greatest benefits to the farming community, was really a danger, because it disseminated tuberculosis among the farmers' herds.³ Still another well-known herd recently attracted attention because 4 animals from it offered for export to the United States were all tuberculous.

From December 23, 1900, to February 19, 1901, the period that the Department inspector tested all Canadian cattle intended for shipment to the United States, 140 purebred Shorthorns and 3 Shorthorn grades were tested, and of the total number 26, or 18 per cent, reacted. During the first month that this inspection was enforced and when it may be assumed that the condition of the cattle most nearly represented what it had previously been, 74 cattle were offered for importation and 18, or 24.3 per cent, were found tuberculous. This evidence is submitted to the farmers of the United States for their information. It is direct,

¹Part II, p. 284.

²Part II, pp. 310, 311.

³Tests and Treatment of Tuberculous Cattle, 1900, p. 19.

reliable, comprehensive, and little less than astounding. It shows the kind of cattle which were being brought to this country before the tuberculin test was applied, and which some persons have been solicitous to have admitted without a test to discover the presence of this disease. Such cattle were imported for breeding purposes, and they were distributed among the breeding herds of this country, and, when diseased, they contaminated our meat and milk supply at the very fountain head of these industries.

LOSS FROM DISEASED BREEDING STOCK.

It is difficult for even the best informed persons to realize the loss which our farmers and dairymen have suffered from the unrestricted distribution of diseased breeding stock during recent years. As an example, a single instance is quoted which was put on record by one of our most thoughtful and trusted American agricultural workers. In a recent communication, Prof. W. A. Henry, director of the Wisconsin Agricultural Experiment Station, said:

Several years ago the writer of this communication received a letter from a good citizen in the State of Iowa, asking him to name some breeder of good cattle of a certain breed from whom the inquirer might purchase some choice stock. As a result this Iowa party came to Wisconsin and purchased 7 head of purebred stock, paying good prices for them. In taking that stock back to Iowa he carried back tuberculosis in the most virulent form it ever affected a herd in this State. He lost all of the 7 animals purchased through death by tuberculosis, and contaminated his whole herd so that he was forced to sacrifice all of the dairy animals he had. And this is but one of more than a dozen places where tuberculosis was spread by sales from a single herd of purebred cattle. [Hoard's Dairyman, Dec. 28, 1900.]

Is there any possible argument which can be advanced to show that it is in the interest of farmers and stock raisers generally to perpetuate the existence of this terrible disease among our breeding herds, and, much less, to favor the introduction of still more contagion from abroad? Not only is it against the farmers' interests to have the disease favored and propagated and spread, but it is also against the interest of the breeder of purebred stock.

The farmers and dairymen who have suffered from tuberculosis in their herds have not yet fully realized that they have generally introduced the disease by the purchase of purebred stock. Only a few weeks ago great excitement was caused in Vermont by the slaughter of several large dairy herds in which a very large proportion of the animals were found tuberculous. Some writers for the press exclaimed in effect: "These are our most valuable and highly bred herds; if they are tuberculous to such an extent, what must be the condition of the remainder of our cattle!" They did not grasp the idea that these particular herds had probably been contaminated in the very effort to improve them by using purebred breeding stock. But others who have traced the origin of such outbreaks and disasters will soon make the fact apparent to every sufferer, and then there may be such fear

of purebred stock that the market will be injured and the cattle industry retarded for many years in its development. The enterprising breeders of purebred stock in the United States should take active steps at once to guard against such a result. They should not, by any neglect on their part, allow a prejudice to form in the public mind which would be detrimental to the live-stock interests of the country. There is nothing that promises more benefit to American agriculture than the rapid grading up of our herds by the use of purebred stock of the improved breeds, providing this stock is free from disease; but, on the other hand, if this stock is permitted by the breeders to become tuberculous, if the purebred herds are the centers from which the contagion is constantly spread over the country, there is nothing which can do more harm. Our herds are probably in better condition to-day than those of any other country. Is it not important that they should be kept in this superior condition, and that the small proportion with disease should be cleaned up and not allowed to continue a menace to a great industry?

DANGER TO THE RANGE COUNTRY.

The danger from tuberculosis is not confined to the dairy and farming regions of the country. It menaces the cattle on the ranges of the Great Plains and Rocky Mountain region as well. Heretofore it has been generally believed that the ravages of this disease were confined to cattle that pass at least a portion of the year in stables. This conclusion is now disproved by the spread of tuberculosis in Argentina, Australia, and New Zealand, where the cattle pass their entire lives in the open air, and where the climate is very favorable to the cure of tuberculosis in man, as is particularly the case in parts of Australia. If the cattle in the countries mentioned are subject to this disease, how can we expect our range cattle to retain their comparative exemption from its attacks if we continue to turn among them a constant stream of tuberculous breeding stock?

The slaughterhouse statistics of Buenos Aires, the capital of Argentina, for 1898 give the following figures:

Number of cattle slaughtered and number found tuberculous in Buenos Aires in 1898.

	Animals slaughtered.	Affected with tuber- culosis.	Percent- age tuber- culous.
Cows	128, 032	665	0.5
Steers	308, 207	641	.2
Total	436, 239	1, 306	.3

That is, of the cows slaughtered for beef about 5 in 1,000 are tuberculous; of the steers, 2 in 1,000; and of all the cattle slaughtered 3 in 1,000 are affected with this disease. There are at Buenos Aires a total of 4,844 milch cows, of which 3,717 have been tested with tuberculin

and 657 found tuberculous. This shows 17.7 per cent of the cows affected. (Sivori.)

The dairy instructor of Queensland, Australia, said in the annual report of the department of agriculture of that colony for 1897-98:

This disease is gaining ground very rapidly, and from tests and personal observations I am quite satisfied that 20 per cent of the dairy herds in Queensland are more or less affected with tuberculosis. * * * The question may be asked why this disease was not prevalent years ago. The answer is that the disease is spreading more rapidly every year, and for every one beast that is affected this year five times the number will contract the disease next year, and so the disease will continue to spread unless stringent measures are adopted to check it.

A year later the director of the stock institute stated that "the time has arrived when stock breeders and dairy farmers are beginning to recognize that some active steps should be taken in attempting to eradicate this most terrible of all bovine diseases." He further says:

The numerous practical demonstrations by officers of this institute, in various centers, have been the means of convincing numbers of stock owners on the following points in connection with tuberculosis in cattle and the tuberculin test:

- (1) That the disease (tuberculosis) is extremely prevalent.
- (2) The impossibility of detecting the disease in the earlier stages by outward signs.
- (3) That contagion is the principal means by which the disease is spread.
- (4) That heredity does not exert the amount of influence that is generally supposed.
- (5) That the disease is preventable.¹

The proportion of animals in the general stock of the colony of Queensland which are affected with tuberculosis is shown by the following table compiled from the inspection returns at the various meat works:

Number of cattle and pigs slaughtered and number found tuberculous in Queensland in 1897-98.

Meat works.	Bullocks.		Cows.		Pigs.	
	Slaugh-tered.	Tuber-culous.	Slaugh-tered.	Tuber-culous.	Slaugh-tered.	Tuber-culous.
	<i>Number.</i>	<i>Per cent.</i>	<i>Number.</i>	<i>Per cent.</i>	<i>Number.</i>	<i>Per cent.</i>
Eagle Farm Works.....	42,256	0.564	4,824	2.990		
Queensport Works.....	30,279	.429	5,318	1.119	1,325	0.452
Redbank Works.....	3,988	.940	1,473	2.511		
Oakey Creek Works.....	1,997	1.614	1,640	3.231		
Mooraree Works.....	1,145	.262			232	.430
Zillmere Bacon Factory.....					43,253	.147
Oxley Bacon Factory.....					5,537	.374
Broadsound Meat Works.....	8,751	.882	4,389	2.870		
MacLay Meat Works.....	15,735	2.408	4,521	3.149		
Total.....	104,151	.860	22,165	2.535	50,347	.182

In the Federal inspection of the United States the percentage of condemnations for tuberculosis in cattle in the year ended June 30, 1900, was 0.0976, or about one-ninth that shown for bullocks in the

¹Annual Report of the Department of Agriculture, Queensland, 1898-99, pp. 108, 109.

above table from Queensland. The percentage of condemnations with hogs was in the United States 0.0233, or about one-eighth that shown in Queensland.

There are in Queensland, however, a number of meat works not included in the table because the bullocks and cows were not separated. These may be grouped as follows:

Additional meat works, showing number of cattle and pigs slaughtered and number found tuberculous.

Meat works.	Cattle.		Pigs.	
	Slaughtered.	Tuberculous.	Slaughtered.	Tuberculous.
	<i>Number.</i>	<i>Per cent.</i>	<i>Number.</i>	<i>Per cent.</i>
Lakes Creek Works	48,137	3.92	1,135	2.71
Ross River Works	28,206	1.68		
Gravial Park Meat Works	3,378	5.59		
Bowen Meat Works	33,996	2.68		
Gladstone Meat Works	19,586	1.39		
Sellheim Meat Works	18,878	9.50		
Total	152,181	3.63	1,135	2.71

If the percentage of animals found tuberculous at the first group of works is surprising, that at the second group appears simply amazing, as it is more than four times as great. The proportion of pigs found tuberculous at Lakes Creek and of cattle at the Sellheim Meat Works is remarkable and demonstrates to what extent tuberculosis may spread even where animals run at large and where the climate is very favorable. That this inspection does not show the full extent of tuberculosis in that colony is indicated by the returns from the Mackay Meat Works, where among the bullocks slaughtered there were 2.408 per cent of carcasses or parts of carcasses tuberculous, but it was necessary to condemn 4.82 per cent of the tongues of these bullocks because they were affected with this disease. This large proportion of affected tongues would seem to indicate that the contagion is spread through the pastures and that the germs gain entrance to the body in many cases through the mouth.¹

In New South Wales tuberculosis has been known for many years among cattle and was designated the "coast cough" long before its nature was suspected. In 1890 an official investigation proved that the "coast cough" was really tuberculosis and that "bovine tuberculosis was extensively prevalent among dairy cattle in the south coast district." It was also reported that "infective disease, probably tuberculosis, is to be found among swine fed on skim milk from butter factories, and is not improbably due to the use of milk from tuberculous cattle."

In a letter from the department of public health, Sydney, New South Wales, February 20, 1900, signed J. Ashburton Thompson, addressed

¹Annual Report of Department of Agriculture, Queensland, 1898-99, pp. 122-128.

to the United States consul at that place and forwarded through the State Department, occurs the following:

The percentage of tuberculous animals discovered at the works managed by Mr. Gee is not great. It is less than we discovered in the ordinary course of business at Glebe Island, and that may be taken on an average to be about 3.5 per cent over all on a number which averages 77,000 head of horned cattle, among which the number of cows may be stated as usually 6,000, or about a thirteenth.

In other words, the proportion of cattle affected with tuberculosis in New South Wales appears to be fully as great as in Queensland.

In New Zealand tuberculosis is apparently somewhat more prevalent than in Australia, and affects cattle which are never stabled. The following table, compiled from the returns of veterinary inspectors at various slaughtering establishments, shows the percentage of tubercular animals among the beef cattle and pigs of the colony:¹

Number of cattle, calves, and pigs found tuberculous in New Zealand.

	Examined.	Affected with tuberculosis.	Percentage tuberculous.
Cattle	21,160	933	4.40
Calves	876		
Pigs	5,066	35	.69

Referring to the causation of the disease, Dr. Gilruth says:

I am not of the opinion that dairy cows as a whole receive the contagium by means of contaminated byres, or sheds, though certain of their number may do so. The majority of the milking sheds which I have examined were only used during the operation of milking; few of the animals were fed therein, and being in nearly every instance built of timber without a wall on the lee side, they were only too well ventilated.

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Were the disease confined to the dairy herds in the colony we might still hesitate before condemning the "want-of-ventilation" theory. But when one finds frequently a large percentage of animals affected which have never been housed, for the simple reason that no house is necessary or desirable, the theory fails. Bullocks are never, under any circumstances, housed in the colony from the day they are born in the paddock till they are slaughtered, yet we have seen that the number of bullocks which are found affected at the abattoir is considerable. I had a striking example of this during the last year. Out of a large herd of bullocks in the North Island, 40 of which the inspector was suspicious were drafted for slaughter. I personally made a postmortem examination of 11 of the number—the first of the lot to be slaughtered—and of the 11 found 9 tubercular to a marked degree. These animals were bullocks, 6-year-olds and over, the culls of the herd for several years, which had run in paddocks of at least 1,000 acres in extent, had never been under a roof till in the railway truck, and could only be approached on horseback. To anticipate any possible objection, it may be stated that microscopical examinations were made of the tissues with positive results.

¹Report of J. A. Gilruth, M. R. C. V. S., chief veterinary officer and bacteriologist, New Zealand Department of Agriculture, 1900, p. 18.

These facts are cited to show the danger with which our cattle are menaced through tuberculous breeding stock, even though they live continually in the open air and in the most favorable climates of the country. Should it be necessary to condemn 4 or 5 per cent of our beef cattle, as is the case in some parts of Australia and New Zealand, the loss would be tremendous and would be a great burden upon the cattle industry. At present our condemnations are about one-tenth of 1 per cent, amounting, with 5,000,000 cattle, the number annually inspected, to 5,000 carcasses. If these carcasses are worth \$50 each, the annual loss from cattle condemned on account of tuberculosis would be \$250,000. If the condemnations were raised to 5 per cent, however, it would mean the yearly destruction of 250,000 carcasses, which, at the same valuation per carcass, would be worth \$12,500,000. To this we should add at least an equal sum to cover losses among dairy stock and purebred cattle, and perhaps \$5,000,000 for loss among swine. Is it not worth our while to endeavor to protect our stock growers from such a drain on their industry and one which, once established, could not be stopped for many years?

PRESENT REGULATIONS PROPER AND CONSISTENT.

In order to create a prejudice against the regulations requiring the testing of imported cattle for tuberculosis, the regulations of the Department have been misrepresented and most unjustly criticised. One writer presented the subject as follows:

Look into the law as it now exists between Canada and the United States and it will be found to be the most nonsensical arrangement that has ever been entered into by any two civilized countries. Purebred cattle on the free list, so far as duty is concerned, are subject to test before they are allowed to pass either way, cattle of no breeding or not purebred are passed either way on inspection and the payment of duty. Can it be possible that this arrangement was advised by our chief veterinarians because there would be no revenue from the poorer class of cattle anyway, as the expense would be too great and the profit would not pay for it, or are the purebred cattle the only cattle subject to tuberculosis?

The facts are that the regulations do not mention purebred cattle nor place any restrictions upon them which are not applied to other classes of cattle. All cattle over six months old, whether purebred or common stock, if imported for breeding or dairy purposes, are required to be tested; while all cattle for immediate slaughter, and for grazing or feeding, and all calves under six months old, are admitted on inspection without the tuberculin test. It should be apparent to any intelligent person that if the effort had been to make regulations which would apply only to valuable stock, then purebred calves would have been tested and dairy cattle, which are mostly of common stock, would have been permitted to come in without test.

After this explanation was made the editor reiterated the charge of lack of intelligence and inconsistency in the regulations, arguing that all cattle are subject to tuberculosis, and that consistency demanded that all or none should be tested. This charge was taken up and republished with variations by a number of agricultural journals, which apparently favor the free importation of diseased cattle and their fraudulent sale to American farmers. For this reason a further explanation of the regulations is deemed advisable in order to satisfy every unbiased person as to their reasonableness. The regulations have been drawn to require that those classes of cattle which are most affected with tuberculosis should be subjected to the tuberculin test, and that those which are only rarely affected should be allowed to come in without this test. That is the only motive which was considered, and it is a proper and consistent one. The class of cattle offered for importation from Canada, which has been found most seriously affected with tuberculosis, is the purebred stock. Of these cattle, 1 in 5 has been found tuberculous. The class of cattle coming next in danger is the dairy stock, mostly cows imported for milk production. Not more than 1 in 2,000 of the cattle brought in for grazing and feeding is affected with tuberculosis, and only a slightly larger proportion is found among cattle for immediate slaughter and calves under six months old.

The object of the regulations is to protect the American farmer from tuberculosis. This disease is brought to him in nearly every case by purebred stock or dairy cows. Consequently, it is required that these classes of cattle should be tested before they are allowed to enter the country. The cattle for immediate slaughter do not go to the farms or mingle with farm cattle, and therefore there is no reason for testing them. The cattle for grazing and feeding are mostly young stock, and, like our own beef cattle, are still comparatively free from tuberculosis. It is thought that the danger from such cattle is not sufficient under present conditions to warrant the expense of a tuberculin test. If there is any inconsistency anywhere it is found in the case of an editor arguing, on the one hand, that purebred cattle, 20 in 100 of which are tuberculous, should not be tested, and, on the other hand, that grazing cattle, only 1 in 2,000 of which are tuberculous, should be tested. It does not need an extended argument to prove that when one class of cattle has 400 times as much tuberculosis as another class, the class most badly affected may require different regulations from the class which is scarcely at all affected.

Moreover, the Department is not seeking to enforce regulations so rigorous and burdensome as to be theoretically perfect in preventing the introduction of tuberculosis. If it went to this extent it would be necessary to test horses, sheep, swine, and dogs, as well as all cattle.

It does not consider this necessary, but if it did go to this extreme, those who now demand such action on the ground of consistency would be loudest in their denunciations. If any mistake has been made it is in allowing the importation of purebred calves under six months old without a tuberculin test. These animals are tuberculous to a far greater extent than any of the other classes allowed to come in without test, and if the regulations are made more comprehensive, such calves should be the first included within their scope.

