COMPLIMENTS OF

The United States Livestock Sanitary Association

R A Hendershott, Secretary-Treasurer
REPORT OF THE PROCEEDINGS

---OF THE---

Eighth Annual Session Interstate Association of Live Stock Sanitary Boards.

St. Louis, Missouri, Tuesday, August 23, 1904.

The convention was called to order, at 10:05, by President Nort-

on, who said: "The first on our program is the address of welcome

by Dr. D. F. Luckey, State Veterinarian of Missouri.

Address of Welcome by Dr. D. F. Luckey.

Mr. President and Gentlemen:

There are at least three good reasons why I can extend a genuine

welcome to you to meet here: first a body of good men have as-

sembled together; second, we have very important work to do; third,

we are meeting at a place where, during our leisure moments, there

will be plenty of amusement—all in the midst of one of the best states

in the Union. I have previously had the pleasure of meeting with

most of the gentlemen present this morning, and can truthfully say

that I have enjoyed the acquaintance.

To touch upon the important work we, as well as others before

us, have done and what is still more important, that which is still be-

fore us, I need only call attention to a few things that have been accom-

plished by the sanitary officers who have been in charge of the gov-

ernment and state affairs since the Bureau of Animal Industry was

formed, several years ago. We have already witnessed services which

would be cause for congratulation in any country. We have seen the

plague of contagious pneumonia invade this country, and have seen it

stamped out without a moment's hesitation on the part of the officials

in charge, without question as to cost. Recently, we have seen foot

and mouth disease, which has done more harm in European countries

than probably any other animal disease, invade this country and be-

fore it barely got started. It was stamped out by the efficient service

of the United States Department of Agriculture, working in co-opera-

tion with the officials of the states in which the disease occurred.
There are many things, too numerous to mention, with all of which you are fairly well acquainted, which have been accomplished by the Bureau of Animal Industry; and, to say the least, that department is one of the most important at Washington, second only to the Department of Agriculture. I do not think it would be amiss to make the chief of the Bureau of Animal Industry a member of the President's cabinet.

While all of those things have been done, we have yet a great deal to accomplish. We have begun on some work which will likely engaged our attention for several years. We have tuberculosis, a disease which we are just beginning to understand. We have glanders, the oldest disease which has been under our notice and which we still know very little about. We have hog cholera, a disease which causes annually much loss, and that is yet to be studied out. No successful efforts have been made to control it. With all of these important duties before us we still have a great deal of work to do, and I am glad to welcome an earnest set of workers to this city, to do whatever little we can in furtherance of this line of work.

I do not say that all of the work by the states and federal department has been perfect, because the work of human hands is not perfect. We have made mistakes, and I might briefly call attention to one or two. I think there has been an inclination—one which should be corrected soon—to fight disease too much by proclamation, after the fashion that Peter the Headstrong fought the Yankees off of the reservation of New Amsterdam. We have made regulations that are impracticable and have had to back out at different times. We have put in time at various meetings discussing diseases which we thoroughly understand. If there is one disease which is thoroughly understood from beginning to end, I think that disease is what is commonly called Texas fever, but more properly called tick fever; and I regret to say that somebody is to blame for what I consider a very grave mistake in regard to this disease which we understood so well. We have had an application from the people of the South to exhibit their cattle at the World's Fair, which application was denied, and the privilege was never granted until the thing was fought through congress, and then they were only allowed to exhibit cattle here, after all other cattle had been exhibited and gone. When we stop to think about it, it seems the mistake is very apparent. We have, according to Bulletin No. 1 of the Department of Agriculture, which is considered one of the ablest bulletins ever prepared by
that department, a statement that the fever ticks, when they mature and drop off of cattle, require some four or five days to lay their eggs, and at least twenty-one days for those eggs to hatch, making in all at least twenty-seven or twenty-eight days before native cattle, exposed to southern cattle, could become inoculated, and we see on the catalogue that the cattle show will begin the 12th of September and end on the 24th. It is presumed the cattle will be unloaded here about the 11th and be shipped away about the 25th, to make room for other livestock. They will have remained here probably fourteen or fifteen days, and will have been shipped away ten days before they could possibly become affected with the tick fever; that is, if the native and Southern cattle were shown together. All the Southern people asked was a Southern division. I see in this, I think, a very grave mistake, in view of the fact that the people of Texas and other Southern states have been the most liberal buyers of pure-bred cattle through this state and probably through other Northern states. They have come, one after another, to the herds of this state, and never have asked a man to reduce the price. They have simply walked in, selected the animals that suited them, asked if they were for sale and, if so, what the price was, and paid it; and the result has been that they have bred cattle that have threatened to outvalue our own, and then they are denied the privilege of exhibiting.

I regret that this matter was not mentioned before our association last year and some reasonable arrangement made, through our efforts, for justice to be shown to the Southern exhibitors.

On the other hand, mentioning the merits, I must not overlook the recent bulletin, No. 53, prepared by our respected friend Dr. Salmon, on the subject of tuberculosis—a bulletin which is a power in itself and one which should be our text in dealing with tuberculosis in the future. I have arranged to distribute this bulletin freely among the people of Missouri, looking to a rational method of dealing with tuberculosis as soon as the cattle men are ready to take the matter up.

Taking the good and the bad together, I think there is room for congratulating those who have been in charge of affairs. There is room for congratulation that so many members are present here this morning, to try to do what is right in the future and accomplish the best results.

We have all kinds of entertainment to offer while you are here. While I hope that the attractions will not cause us to hurry through with our work, I sincerely trust that during the leisure moments
you will each have a good time. As far as amusement is concerned, I can mention a few things. First, we have the races. We are in a storm-center for races. Then we have the electric tower, high in the air; the Ferris wheel; a visit to Egypt; riding the camel for the more frivolous, those who are decorated with venerable gray hairs; and we have the "Girl in Blue" at Delmira, especially suited to the bald-headed (with all due respect.) The younger element, those who have barely sprouted their first beard, can go the World's Fair, and begin with the study of the propagation of corn to increase the protein; or they can go over to the Government building and study out the life history of the mosquito, from the egg to the adult; or they can study machinery, in all its phases; the incubator, which takes charge of children even back to the period of gestation, before it properly ends, and nurses them to life; and in fact, without trying to mention so many things, which probably some of you have seen, I will only say that we have a chance to witness there the "victories of peace." And this is all in the midst of the best state in the Union, whose people are characterized by hospitality and generosity, whose people are satisfied and are inviting others to come and be satisfied with them. We welcome you to a state where the agricultural and live-stock products, as well as the horticultural, are the most varied of any state in the Union. During the last year we have made the highest average yield of cotton per acre of any state in the Union. We grow wheat, corn, timothy, alfalfa, and all other crops that grow in the United States. We raise the best line of pure-bred stock. Our short-horn cattle, for instance, that were shown at the State Fair last year, could not have been excelled if a man had taken a year and hunted the world over, because the cream of the Chicago Livestock Show was there. A Missouri bull won first prize and the Queen's herd second. The cream of that herd were there and are still in this state, and their product is being raised in this state; and the same is partially true of other livestock.

Without worrying you or going too much into detail I want to welcome you, and I cannot better illustrate what I would like to say than by telling a story on a Missouri who died and went to heaven. The most of us are satisfied here, taking in view the chances that we have to run of landing in the other place. But this particular Missouri died and went to heaven, and when he got up there he was being shown around by an angel. He noticed after a while that there were no Missourians. Looking around through the crowd he asked,
"Where are the Missourians?" The angel said, "Come here and I will show you." He took him off into a separate apartment and said, "Here they are." There he saw them all strapped down to chairs, and in his wrath and indignation he said, "Why are the Missourians tied?" and the angel said, "We have to tie them. If we let them loose they would go back to Missouri." So, I welcome you to Missouri. (Applause.)

PRESIDENT NORTON: Dr. Lovejoy, State Veterinarian of Illinois, will respond to the address of welcome.

Response to Address of Welcome.
(By Dr. C. P. Lovejoy, State Veterinarian, Illinois.)

Mr. President, our Host, and Gentlemen:

I appreciate the fact that replying to a welcome from the Louisiana Purchase was a greater task than I was capable of, but when informed that nobody else had the courage to attack it, I consented, under the influence of the old saying that "Fools rush in where wise men fear to tread." When we go to Rome we are expected to do as Romans do; when we come to Missouri we are expected to do as Missourians do. I have always understood that the chief mission of a Missourian was to grow yellow hair (that I cannot do) and raise hell. (Laughter.) But we are here and I see a difficulty arising among the entertainments that have been mentioned—the "Girl in Blue" for the bald-headed men. I have the pleasure of my bald-headed friend to my right there, but I don't propose to divide up with him; nor do I propose to encourage this artificial incubator that they have out there at the Fair—I don't like that idea at all. But we are here, and why? A learned professor, when a student asked why certain phenomena of nature were so, said, "You should not put your interrogative in that form; you should not ask, 'Why?' You should ask it as a student: you should say "How is it?" So I propose to explain how we are here. We are peculiarly situated and peculiarly sired as an association. We are apt to think that the physician, the veterinarian and the bacteriologist are the only ones that are troubled with bacteria, the only ones that have to hunt. That is not so. When that great American wanted to make this Purchase, whose name this exposition is honoring, he ran against constitutional bacteria; and, if you remember, he had to hunt and hunt a good while before he could discover a bactericide that would allow him to make the purchase. The discovery of that bactericide is one of the influences that have prompted us to be here. As an association we are a great deal like the mule—no pride of ancestry. We were sired by that little pesti-
ferous insect known as the Southern cattle tick. As you know, it does not take the tick very long to propagate, nor did it in this instance. This association was sired and born at Fort Worth in Texas, when we went down there to view one of the government experiments in dipping cattle. So, that if this association is anything, it is a child of bacteria. I suppose that the Texas tick had just as definite an idea of our meeting here as did Jefferson when he made this purchase for us; and, as I say, I don't suppose that Jefferson ever dreamed that there could be a man so "lucky" as to extend to an association of this nature the welcome that we have received her today.

There was one thing spoken of by Dr. Lucky that I want to enforce. I preached it in Chicago and voted it in Chicago, and gained some opposition from it, and that is this: That the South has got to be brought into more intimate touch, more perfect Christian and generous harmony, with the Northern work of this association. There is Alabama, there is Mississippi, and those other Southern states that are not up to the standard they should occupy, nor do I think it is a compliment to this association to allow existing conditions to continue in the South as they do. Now, there is a cause for it, and I might mention in illustrating, that when Tennessee first met with us she came asking this association to recommend to the federal government concessions. Everybody was opposed to it, inasmuch as Tennessee had never demonstrated that she was in sympathy with it or had at heart the best interests of the live-stock industry. There was only one of two things to do—refuse her everything that she asked, or place her on her honor and grant her everything that she asked. We took the broader field, and everything that Tennessee asked was granted, with this understanding: That if she did not come back at the next meeting, having demonstrated that she was in earnest by having done everything that she promised, then we would deal with her in the future much more strenuously. Tennessee came back, not only having done what she promised to do, but a great deal more. As a result of that action Tennessee has always received everything she has ever asked for, and has always done everything she ever-promised. It only shows what can be done. And when I read the program and saw that, that gentlemen, small in stature but great in intellect, who always wears a smile, Dr. Tait Butler, proposed to exterminate the fever tick, I felt as though, on the part of the association, it was the killing of our sire. I could not find any statutory provision for it, but going back to the book that I was compelled
to read when young, I found it said, "The end justifies the means."

The discussion, gentlemen, of the Southern cattle tick, of tuberculosis, of pathology and etiology is not the only channel through which this association has wrought good. The good that has been accomplished has been wrought through a thorough acquaintance of the boards of the different states, so that we know whether a state is or is not entitled to be trusted. And I want to say, so far as our state is concerned, that every certificate which has ever come to us from the board of another state has always proved to be a good bond. Without confidence in the representative boards no good can be accomplished through this association.

There is more good yet to be accomplished. Speaking of our own state more especially, there is a great work to be wrought through the shipping of the western horse. First we had the western sheep. That proposition has been very satisfactorily settled, so far as our state is concerned. We could not deal with scabies in our state. It was like mopping a floor with a leaky roof during perpetual rain. We might have our own, domestic sheep, under good control; but from the range would come in a bunch of sheep we knew nothing of until some were shipped and it was reported to us that they were diseased. We would find they were western sheep, shipped in, not showing any scabies at the time they were shipped, but it was on the range. That the government has taken off our hands. I appreciate the difficulty at that end of it as well as at our end, but we have no hope of ever making a good showing in the eradication of glanders in our state until the western supply is cut off.

Dr. Lucky, the representative of Missouri and of St. Louis, and of the Louisiana Exposition as well as of the Louisiana Purchase, it affords me great pleasure, as the representative of this association, to extend to you our deepest thanks for the kind reception you have extended to us. (Applause.)

PRESIDENT NORTON then read the President's address.

President's Annual Address.

I appreciate the honor conferred upon me, and take pleasure in addressing this association as president, but desire more especially to give whatever assistance possible to make this, the eighth annual meeting of the Interstate Association of Live Stock Sanitary Boards, a success in the broadest sense. The American Veterinary Medical Association, the largest organization of veterinarians in the world, held their most successful meeting, in point of numbers and interest,
in this city last week, and our work is so closely allied to theirs that we should gather some inspiration from that meeting—certainly we have with us some of their most active members.

This association, though called Sanitary Boards Association, is composed of members of the various state and territorial sanitary boards, veterinarians, and representatives of our general government. Our purpose is to compare experiences and crystallize into systematic sanitary regulations the practical results of our work and that of the veterinary profession, and kindred scientific workers along sanitary lines. With this purpose fully carried out, with the assistance of our good laws of government and state, it is possible for this association, soon through our united efforts to be instrumental in accomplishing more for the improvement of live stock sanitary conditions, and indirectly the health of the people, of this entire country than has been done in any other country in all time.

Our final aim should be to eradicate as nearly as possible from our land all contagious diseases of animals. Two things are necessary to obtain this result, namely, methods, and the power and willingness to enforce them. To the veterinarians and scientific investigators in experimental and laboratory work must we look mainly for the demonstration of the origin, life and methods of exterminating the infective principle of the various contagious diseases, but we are largely responsible for the passage of necessary sanitary laws and the enforcement of these methods.

Since Koch's discovery in 1882 that the tubercular bacilli was the cause of tuberculosis, sanitary work in all lines has been revolutionized. As the microscope has been perfected, so has the isolation of the germs causing the various infectious diseases progressed. Because some theories have been advanced and afterwards been proven false we should not be too hasty in accepting new theories, but we should study and observe more closely and not be guilty of ridiculing, as some do, all advanced scientific work. The theory must first be conceived and then demonstrated to be true or false. All regret that some are willing to give out their theories before being proven true.

For the assistance of new members and the encouragement of all present and others interested, I will touch briefly on the progress that has been made during the recent years in our country in eradicating and controlling contagious diseases among animals and the conditions existing at present. Though some state sanitary legislation for the control of contagious diseases among animals was passed
previous to 1884, the first important systematic sanitary work of any consequence in this country was begun in that year, when the U. S. Bureau of Animal Industry was established and placed under the able management of its present chief, Dr. D. E. S. Simon.

The immediate cause for the establishment of the Bureau at that time was the presence in the New England states and even as far west as Illinois of contagious pleuro-pneumonia, one of the most deadly and infectious diseases of cattle. The plan of entire eradication, though expensive yet the cheapest in the end, was decided upon and a liberal appropriation was made by the Federal Government for this purpose in 1887. By the systematic work of the Bureau, assisted by state sanitary officers, pleuro-pneumonia was entirely eradicated from our country in five years at an expense of about a million and a half dollars, which is less than four per cent of the value of our annual export trade in live cattle alone, and only one-half per cent of our annual export trade in live stock and their products. This one work alone would well repay for all the money expended by this Bureau during the twenty years of its existence, for many European countries have not yet succeeded in stamping out this scourge.

The heavy losses in Northern cattle due to splenetic fever infection introduced by cattle from the south, caused many Western states, between 1885 and 1890, to pass sanitary laws regulating the admission of southern cattle. The restrictions included all cattle originating below the 36th parallel of longitude. In 1890, the Bureau assumed charge of the transportation of cattle from the South, endeavoring to protect the interests of all the states. During this time many theories as to the cause and methods of transmission of Texas fever were advanced. The Bureau of Animal Industry was investigating these questions also, and in 1889 Drs. Smith and Kilbourne of that Bureau proved positively that the southern cattle tick (Boophilus annulatus) was the only natural means by which the contagion of Texas fever was transmitted.

This fact cleared away the clouds, and at once the tick, instead of the longitude or elevation, regulated the fever quarantine line, and progressive stockmen took courage and began to use measures to eradicate the tick. The quarantine line is no longer a dead line to cattle for nine months in the year, killing the Southern cattle in price and Northern cattle by disease when moved south, for science and experiments have demonstrated that Northern cattle can be immunized and shipped South for breeding purposes without serious loss
by fever, and by dipping in light crude petrolatum Southern cattle can be freed from ticks and shipped North at any season of the year without spreading infection.

Already many states and territories have eradicated the tick from large areas, and it is not too much to expect that with our present knowledge of tick fever the quarantine line will be much nearer the Gulf within another ten years, if the tick is not entirely eradicated. That *Boophilus annulatus* ticks from certain districts do not produce disease when placed on susceptible cattle, is certain; but they should be eradicated as they may become infectious if carried to other localities.

Some Western stockmen have thought that the principal work of the B. A. I. and State sanitary officers was to enforce the Texas fever regulations. Though special attention has been given by the Bureau to some one disease at various times, leaving other sanitary work largely to state officials, assistance has been given along all lines. While states and territories have endeavored to control sheep and cattle scabies, the Bureau has given its assistance by stimulating regulations affecting the interstate shipment of sheep and cattle, and as a result some states and territories have almost eradicated these diseases. Cattle scabies received much attention at last year's meeting at Denver, and much progress has been made in many districts towards its control. The B. A. I. I. Order No. 123, prohibiting the interstate shipment of cattle that had even been exposed to scabies infection on the same range, without first being dipped, was radical, but when justly enforced it proved to be of great assistance to state authorities in enforcing dipping regulations. Some railroad officials and stockmen have misconstrued it to intend that all interstate shipments of cattle must be inspected by federal inspection, and this has caused some confusion and delay. Scabies can be eradicated only by the enforcement of systematic measures governing the treatment and movement of cattle where the infection exists, rather than by inspections of shipments en route. Thorough systematic dipping with reliable dips should be encouraged, as it removes lice and other parasites which are detrimental, as well as scabies infection.

We should again congratulate the Department of Agriculture and Sanitary authorities of Massachusetts and adjoining states in that a year or more has passed since the statement was made that foot and mouth disease had been eradicated from our country, and no trace of the disease has been reported. In November, 1902, foot and
mouth disease was detected by Dr. Austen Peters of Massachusetts and by the systematic work of the Government and State authorities it was entirely stamped out by June, 1903. When we consider that this disease affects cattle, sheep, swine and other ruminants and even the human family, and that the infection can be carried long distances in the clothing and by infected animals, this record is certainly wonderful. This disease in some countries has caused a large death rate and always heavy losses in flesh and dairy products. No reliable estimate can be placed on the loss nor on the cost of eradicating foot and mouth disease, if it had been allowed to spread to our Western states. The disease is still prevalent in parts of Europe and is reported to be beyond control in South America.

The record of less than twenty years of sanitary work in our country is good as far as pleuro-pneumonia, foot and mouth disease, tick fever and scabies are concerned, but there is much yet to be done, for we have only partially controlled many diseases. Tuberculosis, glanders, anthrax, hog cholera, swine plague, maladie du coit, rabies, and many other diseases can more easily be controlled and eradicated now, than at any time later. Practically all of the sanitary work, in controlling these diseases has been done by state authorities, and in states provided with good sanitary laws these diseases have been controlled, and, in some instances, eradicated. The B. A. I. guard against the admission of infections from other countries, and as far as possible the movement of diseased animals between states; but each state should control and eradicate the diseases within its bounds and be in a position to promptly suppress any infection that might enter.

The great white plague, tuberculosis, which is causing one-seventh of the loss in human life in our country, or over 160,000 lives annually, is still doing its steady, quiet work of destruction, and certainly we have plenty of evidence that the live stock that this association is partly responsible for, have much to do with this great loss. The State Board of Health of Illinois reports that the deaths from consumption in that state last year were more than were caused by typhoid fever, dyptheria, scarlet fever, bronchitis, influenza, whooping cough, measles and small pox combined.

Reports state that tuberculosis is not found in Lapland, where only the milk of the reindeer is used, nor in India and China and the Philippines generally, but in Manilla, where the cow has been introduced, tuberculosis has been found.
Koch's statement, some three years ago, that tuberculosis was not transmissible from animal to man caused some delay in the progress of stamping out this disease; but it also caused many thorough experiments to be made by our government authorities and others, with the result that it has been demonstrated beyond a doubt that the disease is transmissible from animal to man. The long period of incubation causes people to question the source of the infection, but the death rate continues among man and animals, and why delay longer? As sanitary officers, we should not go to the extreme of destroying valuable property needlessly, but surely should have in view eradication of this disease among animals.

The cost of eradication would be considerable, but the loss without eradication is equally as great each year as long as the disease is unchecked. The Bang system, which is the isolation of all infected animals and does not allow the rearing of calves from tuberculous dams by their dams unless the milk is sterilized, is a good compromise where valuable tuberculous cows are found by tests, and are in good condition as the calf is seldom born infected. Fat animals when destroyed should be sold subject to post-mortem examination. More attention must be given to the proper care of cattle when in stable. While visiting a dairy farm in this valley recently, where many tuberculosis cows had died or been destroyed from time to time, but no disinfection methods had been in force, I held post-mortem on a rat that had just died, and found one lung a solid cheesy tuberculous mass.

The association must acknowledge that one of our Western state veterinarians, Dr. M. E. Knowles of Montana, has succeeded in getting the most thorough state dairy inspection law enacted and enforced of any state in the Union. Under that law each city has a salaried veterinarian or physician, paid by the state, to inspect regularly the dairy stock and their products under the direction of the state veterinarian. Many or all states have inspectors of kerosene, elevators, engines, etc., for the protection of human life, yet allow dairy stock rotten with disease to continue to produce infected milk to slowly destroy our children and sick ones and too many of our strong people.

When cities have inspectors they are too often the friends of politicians, who are only able to weigh milk and determine the percentage of fat and whether water has been added, instead of being practical scientific men who look particularly to the healthfulness of the
source of the milk supply—the cow, and the sanitary methods of handling the milk products. The inspector should see that milk contains the proper amount of fat (3 per cent or more) for the separators rob our citizens of hundreds of thousands of dollars annually, but water and the lack of fat are responsible for the loss of few lives as compared with disease. As veterinarians and laymen we can do much in an educational way to change this condition of affairs.

State authorities have done good work in controlling glanders, but it is well for us to compare notes on our methods of handling outbreaks of this disease, use of mallein, care and disposition of reacting animals. Some release reacting horses claiming that mallein cures. As glanders often lies latent a long period and is communicable to man, it seems to me that we should be very slow about releasing any animal that clearly reacts to mallein when tested under proper conditions. To hold in quarantine and test several times may prove as expensive to the state as to pay a reasonable price for the animal and destroy it as soon as it reacts. Better advise paying owner for the reacting animal and burn its carcass than officers for several treatments with mallein and still have a suspicious animal abroad liable to cause the death of some innocent owner. It is a question whether mallein has any curative value, as many cases apparently recover without any treatment. There is room for argument on this question, and we should all understand the custom of various states as horses with latent glanders shipped from one climate to another often develop acute glanders.

More attention should be given to stamping out rabies. England has entirely rid itself of rabies by strict sanitary regulations, and now requires every imported dog to wear a metal harness for six months marked "Board of Agriculture and Fisheries. In Quarantine for Rabies. T. D. No. . . . . ." Australia has never allowed rabies to enter by enforcing strict quarantine of all dogs imported. Only last week six rabid hogs were destroyed in Iowa. The dog that bit them was destroyed some two weeks before, but no effort was made to prove positively that rabies infection was present and trace its origin and stamp it out. Many states report many outbreaks of rabies each year, and usually several people are bitten and sent for Pasteur treatment. Though cattle, horses, swine and dogs, as well as man, are affected by rabies, the dog is the principal carrier of the infection. The disease cannot originate spontaneously, therefore its eradication is possible. Much education is needed among the laity and often among professional men if this disease is to be eradicated.
Anthrax, another disease transmissible to many species of domestic animals and man is reported from some twenty states. Hog cholera and swine plague have received very little systematic attention over any large area, except by Minnesota state authorities. It is considered by many a necessary evil, always to be threatening the destruction of a large percentage of the $300,000,000 worth of swine now owned in our country.

We should lend our support in every way possible as state officials to encourage liberal appropriations to maintain the Bureau of Animal Industry; for if our country was free from contagious diseases, it is just as necessary to continue the inspection of all imported stock, which is the great work of the Bureau. Contagious foot and mouth disease is still prevalent in European countries and in South America. Pleuro-pneumonia still exists in Europe and Australia. Recently it has been reported that there is a large amount of rinderpest among ruminants and surra among horses and cattle in the Philippines. The latter disease, surra, and contagious ulcerative lymphanitis occur in tropical countries and in the Philippine islands, and effect principally horses and mules. Though we may not import animals from all of these countries because of quarantines enforced, yet unless the continued care of the government is given to all imported live stock and their products, the infection can easily be introduced with wool, hair, hides, and other commodities imported. It is fortunate that sanitary laws were passed in this country before our trade with other countries was so general.

If I have given anyone a thought that will cause discussion on these important questions, I am satisfied, for it will lead to better understandings and more definite conclusions. If all who are eligible to membership in this association would join earnestly and continuously in its progress along broad lines, we can arrive at definite conclusions and formulate regulations which will be considered authority. As a result state sanitary laws and appropriations for sanitary work will be obtained more easily and state sanitary regulations will be more just, simple and uniform.

THE REPORT OF THE SECRETARY WAS THEN READ.

August 22, 1904.

W. P. Smith, Secretary-Treasurer,

In account with the Inter-State Association of Live Stock Sanitary Boards.
At the conclusion of the reading of the report the secretary continued: You will notice that perhaps a dozen or more of the states and territories have contributed their annual dues or assessments in the amount that the association thought would be amply sufficient if each state came up with its allotted portion, and that a number of the states have, through oversight, I think, and for no other reason, failed to contribute. The balance on hand as per last report was due to the fact that the stenographer we had two years ago at Wichita, Kansas, on the occasion of our annual meeting either through carelessness or inability to transcribe his notes failed to furnish us with a report of the proceedings of that meeting, and, incidentally, failed to get pay
for his services. Consequently the money which would probably have been expended for the report that year was carried over into last year. As this association will only have next year's assessments to depend on for paying the expenses of this meeting as well as of transcribing, printing and circulating the next annual report, it will be absolutely necessary that more states "loosen up" in the next year than did in the past.

PRESIDENT NORTON: What will you do with the report of the secretary and treasurer?

It was moved that the secretary's report be adopted.

Seconded. Carried.

PRESIDENT NORTON: The next business is appointment of committees. —I will say in this connection that I will appoint these committees upon convening after dinner. I would suggest, from experience at the other two meetings which I attended, that it would be well for the committee to meet this evening and appoint sub-committees to draw up their reports. If there is no other objection, I think we might as well move to the reading of papers.

MR. BOLTON: I wish to suggest, in case there are any arrangements for holding another meeting on the Fair Grounds, that the Oklahoma building would be open to you.

PRESIDENT NORTON: We are certainly very grateful for that, but the thought was if we went over to the Fair Grounds today we would get scattered, and we thought it best to do the principal part of our business here today and tomorrow afternoon, and go over there later.

The Secretary has requested that, while we are here, he be allowed to call the roll and get his list in shape. It will only take a few minutes. If someone will report the names from each state it will save time.

The Secretary then called the roll of states and responses were made as follows: Arizona, J. C. Norton, Phoenix; Alabama, C. A. Carey, Auburn; Arkansas, R. R. Dinwidie, Fayetteville; Massachusetts, J. Beckett; New Jersey, Wm. Herbert Lowe, Patterson; Illinois, C. P. Lovejoy, Princeton, L. C. Tiffany and A. W. Sale, Springfield, Wm. P. Smith, Monticello; Kentucky, F. T. Eisenman, Louisville; Minnesota, M. H. Reynolds, S. H. Ward, Chas. E. Cotton; Missouri, D. F. Lucky; New York, Law, Auburn; Ohio, Paul Fisher; Texas, W. J. Moore, San Antonio, M. M. Hawkins, Quanah, Knight, Houston; Oklahoma, W. F. Bolton, Woodward, Thos. Morris, Guthrie, T. A.
Becker; Kansas, Stewart; Nebraska, W. A. Thomas; Montana, M. E.
Knowles, Helena; Colorado, Chas. G. Lamb, Denver, Geo. H. Glover,
Fort Collins.

THE SECRETARY: Now, understand, gentlemen, we consider all persons members who have taken interest to be here. I will call for the representatives of the Bureau of Animal Industry. The representatives were as follows: Colonel Albert Dean, Kansas City; Dr. L. J. Allen, Oklahoma; Dr. L. A. Klein, Fort Worth, Texas; Dr. A. H. Wallace Kansas City.

PRESIDENT NORTON: The first paper on the program is by Dr. Butler. He promised to be at this meeting and was here until last Saturday, when he was called home to do some institute work, on account of the sickness of another gentleman. He promised to have his paper here. Has he sent it to anyone? (No response.)

Mr. Morris will be here this evening with his paper. The next is Dr. M. E. Knowles, State Veterinarian of Montana. Dr. Knowles is now president of the American Veterinarian Medical Association. His topic is, "Federal Inspection as a Means of Controlling Scabies in Cattle and other Range Stock."

DR. KNOWLES: I move that we proceed with the discussion of the president's paper, and leave the other papers until after luncheon. There are several points in your paper that should be discussed by this association.

Seconded. Carried.

PRESIDENT NORTON: I will call upon Dr. Knowles to lead the discussion for a few moments.

DR. KNOWLES: Mr. Chairman, and Gentlemen, unfortunately I was not present to hear the first part of the paper but just as I came in you were saying something about the Bang system of eradication of tuberculosis. I should like to know if you recommend the Bang system among the lower grade cattle, or do you recommend its employment only among high grade cattle?

PRESIDENT NORTON: I can answer that by reading the remarks I made. I mean high grade. If you have a cow worth, say, hundreds of dollars, that would bring for beef purposes, even if it were fat, only $40.00, I see no reason why we cannot compromise to this extent: Allow the owner of the cow to keep it isolated from other healthy cattle and as soon as the calf is dropped, take it away from the cow, and either rear it on a nurse cow or on the dam's milk after it has been sterilized. It is very seldom that the off-spring is
infected when born. This would enable the owner to keep the cow for one or two years, if necessary, and in that way could propagate the particular family, and still I think there would be no harm to the other cattle.

DR. KNOWLES: Mr. Chairman there are a great many serious difficulties, as you all know, in the eradication of tuberculosis, and one of the greatest in a sparsely settled community is the disposition of the meat of tuberculous animals. Unfortunately, our law does not permit the use of tuberculous meat. It distinctly says that the carcasses of all animals suffering from any contagious disease must be destroyed or buried. That question has been up and it has been a serious one in Montana. It does seem that many of those carcasses should be utilized for food. But we are really operating under two laws—the live stock sanitary law and the meat inspection law, and the old live stock sanitary law has the provision that I have mentioned before. Then the other thing that confronts you is this: That as soon as you attempt to sell the meat of a tuberculous animal, everybody in the community knows it, and it is quite likely to ruin the butcher's business. I think that 99 per cent of the people of Montana would object to eating meat from any animal in which there was the slightest suspicion of disease, and of course some malicious individual will immediately disseminate the news that a butcher is using tuberculous meat. It is really a great loss to the state and to the owner, and it is a particularly difficult matter for the veterinarian to handle from a personal point of view. It is a thing that makes the veterinarian decidedly unpopular, that is, a veterinarian in an official position. I should like to have some one offer a solution of that problem, as to what can possibly be done with the meat of tuberculous animals in a sparsely settled country, without doing injury to anybody.

DR. THOMAS: In regard to the disposition of meat, I have done a little work upon the testing of tuberculous animals in Nebraska. I know we have in the state a large number of centers of tuberculous infection. To give you one illustration: I tested a bunch of cattle, about 20 head of adult animals, together with a few calves. I got 18 reactions. That, you will notice, is 90 per cent. Our law with regard to the disposition of animals suffering from contagious and infectious diseases is very similar to that stated by Dr. Knowles. The number of reactions was so large in this small bunch of cattle that I did not have the courage to make a funeral pyre, so I resolved to
unload through the abattoir or through our co-operators, the Bureau of Animal Industry, and the people who owned these cattle were satisfied to have this done, as I told them a large number would pass meat inspection. I found I was up against another proposition when I undertook to ship those cattle to Omaha for slaughter. The railway company refused to ship them, and I was accused of violating the state law by shipping diseased stock. I went to the heads of the freight departments of two railroads in Omaha, after their agent had refused shipment of the cattle, and I was again refused. I wrote the department at Washington that their regulations were interpreted in such way that I could not ship those cattle for slaughter. I received a letter from the department stating that there was no reason why those cattle should not be shipped from one point to another in the state for the purpose which I mentioned. Then I showed this letter to the manager of one of the roads. After reading it over carefully, he said that he would give me permission to ship the cattle. It took about one month to get those cattle moved and slaughtered. At the place where I made the test I had slaughtered three animals, simply because the people wanted to see what the disease was, and shipped the balance. They came into Omaha and were sold and slaughtered. All the animals passed meat inspection, but each one showed lesions of the disease. Just as Dr. Knowles has remarked, if people knew that the butcher was handling such stuff you could not slaughter them. It is only through the butchers they can be handled.

In regard to the Bang system I will just make one remark. It is of scientific value, but so far, I can not see that in any place we can conscientiously, scientifically or for the purpose of exterminating the disease tuberculosis, practice the Bang system. I certainly realize the step that has been taken and the value of it as a scientific experiment, but practically, as a method of exterminating the disease, I am not fully convinced that it is a good thing. While, as I said before, we have a large number of centers of tuberculosis in Nebraska, I do not know how soon it may be possible to enter in a scientific manner upon the work of suppressing the disease.

DR. LOVEJOY: Mr. Chairman, I will say this In regard to the Bang proposition: That in our own state, when we were working with tuberculosis, in four different instances I advised the owner of the herd to isolate his reacting cattle and breed them out. In each and every case I was afterwards asked to go and kill them. Bad news spreads very quickly. These men said they might as well kill their
whole herd as to have isolated cattle, after it had become known that the disease existed. People are not all gifted with good reason. Nobody would patronize them. The impression was created that their whole herd was diseased. So, in our state (with my limited experience), it does not work. There is another phase of it. I would not go as a stock breeder to a farm or herd and buy a bull that was bred from a tuberculosis cow, for the simple reason that there is a natural diathesis existing; and when you test herds and find disease running down through four generations there is a cause for it, and my explanation of it is simply this, that there is a natural hereditary diathesis existing in those descendants. I have gone into herds where a very high percentage of the cattle have reacted and have found a few that had been subjected to the same influence for years that others had, and had been proof against it. I would give a great deal more for a mare, to breed from, that had never thrown out a spavin than I would one that had two spavins, not that spavin is hereditary but there is evidence of weakness in the one that does not exist in the other. Now, I appreciate the difficulty that Dr. Knowles is in, away off in Montana, away from a big abattoir, in disposing of his cattle. Do you pay anything for them, Doctor?

DR. KNOWLES: Unfortunately, we do not.

DR. LOVEJOY: It would not make much difference if you did, unless you paid more than they were worth, as you would meet with the same cry, because we tried to be liberal and were liberal (and a man is generally what he tries to be), and it had no influence whatever on them. We have no funds. Where any work is done, it is done quietly and the owner is allowed to ship to Chicago. Some people (who are a little selfish), if they know the animal is shipped so far from home, feel perfectly secure in not having any of the meat move back to them, which it may. In our own town, we tested milk cows and have killed some. You cannot get a butcher to handle one. It would ruin him. We have got to bury them all. But I think you might make some such arrangement as this, Doctor: Quietly arrange with the owner and some commission man in Chicago and have these cattle shipped over there; have them go to the public abattoirs and have the government inspect them. If we accomplish in this country any work in the eradication of tuberculosis it has got to come, not from a generous motive or influence, but from a selfish one. In our state, if we ever deal with tuberculosis at all successfully, it has to come from the selfishness of the new municipalities. I never ex-
pect to see our legislature again make us an appropriation to deal with this disease unless there is a demand from the larger cities in the state. Springfield and several smaller towns have done good work. Our whole trouble is confined to the northern part of the state which supplies Chicago with her milk, and until Chicago takes that important step in our state we will never be able to accomplish anything in the direction of eradicating tuberculosis, which, fortunately, is confined to the northern part of the state. We have never found a case south of the Wabash Railroad, and I will say this, Doctor: That so far as the powers that be in the state of Illinois are concerned—and Chicago comes pretty near being Illinois—any help that we can extend to you in disposing of tuberculous cattle, we will be pleased to extend.

DR. KNOWLES: That is all right for gentlemen who live in proximity to public abattoirs, but another question comes up when you attempt to ship tuberculous cattle from one state into another. That would certainly have to be done under federal regulation; have to make arrangements with the Bureau of Animal Industry for that purpose, and I am not sure that it can be accomplished. Has there been such a precedent established?

DR. LOVEJOY: I would say this, Doctor—a little different proposition, however—we have had diseased cattle shipped directly to the Illinois state board from Montana. It would not look well, of course, to have the state board of Illinois receiving tuberculous cattle from Montana, when Montana of course could not receive any from Illinois. There would not be a treaty of reciprocity. The conditions are so different. Of course we do not want them, and at this time I do not see any plan by which it could be accomplished; but I have a strong feeling that there is a way and a channel through which you can get relief. I do not know whether the law would permit you to consign them to any federal representative in Chicago or not; but you can get around that, I think, by having them select some commission man. In other words, just so that there is a safeguard thrown around them and that it is a certainty that these cattle will go to slaughter. That is all that anybody interested in it would care about.

DR. KNOWLES: I am glad the Doctor believes in reciprocity, and I want to assure him, and particularly the gentlemen from Iowa, that Montana does too. The fact of the matter is that tuberculosis is only prevalent in those counties which have drawn most heavily from the eastern states, particularly from Iowa and Illinois.

DR. LOVEJOY: The state that has the best cattle.
DR. KNOWLES: Possibly the best dairy states. I think that someone made the remark that our law applied to cities. I want to correct that impression. The inspection applies to the various counties. In the small counties it is the inspector's duty to visit each town. He is usually located in the largest town. I want to say that in the cow counties of the state, where cattle are raised, we have comparatively no tuberculosis. I think that in four of the counties there was not a tuberculosis animal found, and the dairy cows in the various cow counties range from 250 to 500 cows, used especially for that purpose. In addition to testing dairy cows, it is the inspector's duty to test individual cows from which milk is sold to any of the citizens. So you see that we are reasonably free from tuberculosis, with the exception of Silverbow and Lewis and Clarke Counties. Lewis and Clarke happens to be one of the counties that has drawn most of her dairy cattle from the cow counties of the state.

MR. BOLTON: Dr. Knowles has suggested the same thing that I was going to speak about: transportation across the state line.

DR. CARY: I have had some trouble of this kind. I do not see how we are shall accomplish anything if one state is going to invite another state to ship its tuberculous animals into it. It seems to me that is reckless scientific work. If one state takes upon itself the right to ship to another state for slaughter it should send an inspector along with the shipment and see that the cattle do go to slaughter. In a case in my state a dairy herd reacted 50 per cent or more and those animals were afterwards sold and scattered indiscriminately—we had no power to destroy—by being permitted to be shipped out of that locality, presumably for slaughter. Now, what is to hinder a commission man, when he gets those cows into Chicago, with no certificate stating what is the matter with them, selling them out as dairy cows to somebody who might be there and want that class of cows? I say right here is a loophole, and I say, furthermore, if we do not want to eat the stuff ourselves, we had better bury or burn it.

DR. GLOVER: I should like to see some action taken here in the way of a resolution in order that we may use it before our various state legislatures at the next session. Any action taken by this body would have much weight. In Colorado we are doing practically nothing in the way of effort to eradicate or control this disease, or in the way of meat or milk inspection, beyond the work the government is doing. We were doing something in this line about the time that
Dr. Koch made his affirmation, but the comments of certain newspapers, especially "The Gazette," about the "horse doctor" changed the whole thing. In our climate out there, as you all know, we have very favorable conditions for tuberculosis. People go there and jump off, as I said at our state meeting, from all over the world to get the benefit of our western climate. But we are constantly being infected, not only from the people but from the shipping in of livestock. At the agricultural college we have done something, at least have set an example. We had one old cow there that we thought might have tuberculosis, and decided to give her the test, and finally gave the test to the whole herd, and found that the old cow was all right, but that 33 per cent of the rest of our choice cattle, that we paid fancy prices for, were infected. The trouble came, I am sorry to say, from my native state, Iowa. Well, we killed most of them, but a few were kept to make this experiment. We did not sell them, but gave them to a certain man to take on to his farm, under a cast iron contract that he was to keep them and breed them, and a record was to be kept of their produce, the time they were slaughtered, the calves to be taken directly from tuberculous cows and placed on other cows, and to be kept entirely isolated. We believe that, under the favorable conditions out there, stock calves can be raised perfectly healthy, although there is, as Dr. Lovejoy stated, that inherited pre-disposition, and while that amounts to a great deal in the human—the narrow chest and other things—I believe that in the lower animals it does not mean so much. On our western ranges we have a very small per cent of tuberculous cattle—very small indeed—and when they are destroyed are sent to the local markets and peddled out, we get them and eat them, tubercle bacilli and all. But this is, to me, quite an interesting experiment and I am going to carry it through with great care, and will give you the results when we are through.

DR. KNOWLES: I should like to say in connection with the Bang system, that I think it is absolutely impracticable in this country, for the reason already given. While I have not tried to employ this system before this law passed, there are one or two full blood herds that I tested and found tuberculosis in them, some of them very valuable animals. I discussed the Bang system with the owners, and it was uniformly the opinion of those gentlemen that the better thing for them to do was to destroy their
tuberculous cattle, no matter what the cost might be, looking to
the welfare of the future.

PRESIDENT NORTON: If there is no further discussion of the
question I will say that the Bang system has never been tried in
Arizona. We certainly shall look forward with great interest for the
results of the experiments by Dr. Glover.

DR. EISENMAN (Kentucky): In our state the word "tuberculo-
sis" is not used in the statute, and diseases of that character are
handled under the general statute which deals with the eradication
and prevention of diseases. Previous to April of last year I do not
know of any testing being done for purpose of determining how much
tuberculosis could be found in a given herd. Dr. M. K. Allen, who
is city health officer and also on the commission of the insane asylum
at Lakeland, Ky., made testing possible and he has also been very
aggressive in seeing that good milk is brought to the city of Louis-
ville. He tested milk for formaldehyde and other injurious matters
and found some of it very unwholesome and unfit for food. When
tuberculosis is suspected to exist in a herd that is supplying milk
to the city the Doctor orders an inpection to be made and the react-
ing cattle, seemingly without authority, are sent to the city abattoir
in Louisville, and those that are fit for food are allowed to pass.
In this way the owner gets some small compensation, and, seemingly,
he is satisfied.

We have been down the line; we have had all sorts of oppo-
sition, personal encounters, rifles thrust into our faces—you know
they will fight in Kentucky—and effort has been made to slip the
cattle away. The state board of health, however, has the privilege—
and they exercise it quite often—of quarantining. We tell a man, "We
do not care how long you keep your animal here, as long as it is
under our supervision, whether it be one day or one year, but this cow
must remain isolated from the others or be sent to the abattoir."
In that way we are gradually overcoming what appears to be a terrific
opposition.

I feel we can get a proper law, and with that in mind I have
written to every state man about it. I believe the next legislature
will enact some law that will work to a good end. I am in favor of
killing cattle. I do not believe it is proper to practice the Bang sys-
tem. Some cattle will get along, but it prolongs the disease, and in
some cases it makes the opposition more severe.
DR. DINWIDDIE: If there is nothing further to be said about tuberculosis by anybody else, I do not wish to let this opportunity pass without saying something upon the subject myself. I never lose such an opportunity, whether at a medical or a veterinary meeting. The president, in his address, mentioned a number of ways in which the officers of this association might be instrumental in suppressing disease. There was one way he did not mention, which I think has been neglected too much in this country. In the prevention of diseases in mankind and in animals, we want first of all to go to the root of the matter. What is the primary cause of tuberculosis, gentlemen? Some of you are bacteriologists and others of you probably are not. A bacteriologist will say that the primary cause of tuberculosis is the tubercle bacillus. One who is broader in his views will perhaps say there are two primary causes of tuberculosis: one the tubercle bacillus and the other the surrounding conditions of the animal or the human being who is suffering from the disease. The essential cause of tuberculosis in mankind, in my opinion, is not only the tubercle bacillus, but the neglect and disregard of ventilation, all too prevalent in this country and in other countries as well; and the main cause of tuberculosis in cattle is the manner in which cattle are raised in stables, the lack of ventilation. I was surprised to hear the doctor from Montana tell about the amount of tuberculosis in cattle in that state until, later, he explained it by saying that the disease was in cattle imported from Illinois and Iowa. There is no tuberculosis, gentlemen, in the western states among native cattle—practically none. Tuberculosis is a disease incident to domestication and to lack of ventilation in our stables—in Wisconsin, where they have so many dairy farms, and in Illinois and Iowa; and all the tuberculosis I have seen in the state of Arkansas in the last 15 years has been in cattle imported from Illinois, from some of the state institutions; and when they arrive at the state institutions they are treated in the same way they were in Illinois, that is, by keeping them in so-called warm stables. In Illinois, Michigan and Iowa they think they need warm stables. Now, gentlemen, what is a warm stable for cattle? What is a warm house for human beings? We cannot have a warm house except in two ways. One is by shutting up our rooms and crowding together and getting heat from the exudations of our bodies. And what is a warm stable? We do not employ artificial heat. We get it warm by closing doors and windows, and the first principle of ventilation is thereby neglected, and
that is the cause of tuberculosis. How do we treat tuberculosis in the human family now? The way they treat it is by sanitariums, in which the patient practically lives in the open air, and no other way is now used. That method is coming into use everywhere. If that is a means of curing tuberculosis—and it is—why is it not a means of preventing tuberculosis? That is the only way in which tuberculosis will ever be controlled, either in the human family or among cattle. And I think that veterinarians and members of state sanitary boards should take some action to bring into prominence the examination and inspection of dairy farms and stables to prevent contagion and they will do great good. People will understand more about it and appreciate it.

DR. CARY: I would like to say one more word in regard to the work in Alabama. It is ten years since we established meat and milk inspection in the cities of Montgomery and Birmingham. We have there corporate abattoirs, where all the slaughtering is done in one slaughterhouse, modeled on the German plan. All the slaughtering is done in this one slaughter house in these respective towns, and all inspection is done by qualified inspectors. The dairy cows are also tested with tuberculin. We have not the power, however, to kill cows outside of the city. In framing the laws for the respective towns, I put this clause in each one: "All dairy cows shall be given each day at least six hours' exercise in the open air." There was quite a discussion as to whether the law should be passed or not, because they said that, according to dairy records, cows that were confined continuously gave the most milk. We had to fight to get this open air clause in, and the result is we have very little tuberculosis now except in cases where it is shipped in from states north of us or brought from other places into these cities in dairy cattle.

DR. LUCKY: It is very true that nobody will question that dairies ought to be well ventilated and well kept and that open air is necessary to the health of animals. Still, we know that, no matter how poor the ventilation or how closely cattle are confined, there will be no spontaneous development of tuberculosis among them, and that tuberculosis gets into a herd by the introduction of tuberculous animals. That is a thing which we can prevent with comparative ease, at least as soon as we get owners of herds to appreciate the danger of introducing tuberculous animals, and tuberculin test all animals that are added to the healthy herd. But the great question that has been asked here this morning, and which I feel is yet unsettled, is, What are we
going to do with those that react to the tuberculin test? If we cannot settle this question today we ought to have a committee at work on it from now until the next meeting, or longer, if necessary, until we do settle it in a practical way, and a way that will command the respect of the cattle purchasers and secure their co-operation; and if this association accomplishes nothing else in the next five years, I feel satisfied that the state will be well repaid for our efforts, if it takes that long. We have not control of tuberculosis in the state of Missouri simply because I am not able to answer this question. I propose to do all I can towards solving it. I have thought of allowing owners to keep the diseased animals isolated, I have thought of allowing them to ship to abattoirs, and I have thought of asking the state to make appropriations for the partial indemnity of animals that are destroyed, as we do in the case of horses with glanders, and I am not yet satisfied to draw a conclusion, but propose to get at the matter in the most practical way, and the first move that I shall make will not be with the legislature at all—it will be with the cattle breeders' association of this state, and I propose to have them ask the legislature for laws that they think they need. I propose to begin that this winter and I expect it to be my main work for the next three years, and I feel confident, from the association I have had with the cattle breeders of this state, both dairy and beef, that I can get their co-operation. Without it I feel that I can do nothing. I propose, at the next meeting of the Improved Breeders Association, to take some cattle and inject them with tuberculin alongside of some that are not injected, to let the members of the association see with their own eyes that the tuberculin does not damage cattle as the "Breeder's Gazette" says it does. I propose to put before their eyes some registered beef animals that I know have reacted to the tuberculin test and ask them to say whether or not they think such cattle are tuberculous, and I propose to slaughter those animals before their eyes and let them see whether they are tuberculous. After I do that, I do not think there will be any doubt but what we can get the co-operation of the cattle men in carrying out any reasonable method for getting rid of tuberculous cattle. I do not think there are many tuberculous cattle in this state. I had occasion to test several beef and dairy herds, and am gratified to find but a small amount. There is more than we would like to have. If the cattle of this state were affected with tuberculosis, and it was necessary to do this to get rid of it, I feel the state could well afford to kill
all of them immediately, and I feel that the people of this state will demand, that it be done if that necessity arises. I hope I can come to a conclusion at some time—if not today—as to what we will do with tuberculous cattle, and I hope we will each go to our own state and start to work on that line and try to carry out our work in a manner which will win the co-operation and respect of the intelligent breeders of our various states.

DR. LOWE: Mr. President and Gentlemen: I probably ought to say a word before this subject of tuberculosis is disposed of. In the state of New Jersey we are dealing with the problem of the eradication of tuberculosis. We have a special commission, called the State Tuberculosis Commission, which has control of the eradication of, or the dealing with, that disease. When the law was first passed the Commission dealt principally with the disease in the various dairies of the state, and for several years the work was largely of an educational character, to get the dairy men and the farmers to understand what was necessary to accomplish, to get them to understand the importance of keeping the animals under proper sanitary conditions, very much as Dr. Dinwiddie has expressed. Later, the legislature of New Jersey gave the State Tuberculosis Commission further power, requiring it to examine and test all cattle shipped into the state for dairy or breeding purposes. In many instances these cattle come in on certificates of veterinarians in the state from which they are shipped; and if they do not come in on those certificates the state tests them and I think we are getting fairly good results. Of course a great deal depends upon these certificates of tests that we accept. If the veterinarians are competent and honest, of course these certificates of test are of great value; but when they are not competent and honest, we lose any safe-guards we might have by reason of the certificates.

DR. LUCKY: What do you do with your reacting animals?

DR. LOWE: When disease is reported in a dairy the commission examines and tests the animals; those that are found to be diseased, that is, that react, etc., we destroy. We appraise the value of the condemned animals and allow the owners three-fourths of the appraised value.

A Member: What do you do with the meat?

DR. LOWE: The carcasses are buried. Of course, if cattle shipped into the state of New Jersey are condemned upon arrival, the owner has to stand the loss.
DR. CARY: If these animals come into the state and a commission man sells them to a butcher, say, are they sold as condemned animals?

DR. LOWE: If they come in diseased they are destroyed under the supervision of the commission.

First, the shippers apply to the tuberculosis commission for permission to ship into the state of New Jersey, and when that permit is granted the secretary of the commission states the conditions upon which it is granted, and if the animals come in on a test, and we are satisfied that the test is sufficient, they are accepted. Of course, where we are not satisfied we insist on making a test, and condemned animals are destroyed.

DR. GLOVER: I will move you, Mr. President, that a committee of three be appointed by the chair to draw up suitable resolutions for presentation to this body before adjournment, stating the sense of this meeting, first, as to the importance of dealing vigorously with this disease; second, as to our faith in the reliability of the tuberculin test; and third, as to the best method of disposing of reacting animals.

MR. BOLTON: I move to amend: That this committee follow out the lines of the suggestion of Dr. Lucky. What we need to have is a permanent remedy. We have no tuberculosis in Oklahoma. We never had but one case and we shipped that back. We are not anxious for it. We have our trouble with southern fever. I like the idea suggested by Dr. Lucky. The gentleman has the knack of saying the right thing at the right time.

PRESIDENT NORTON: I would like to have the reporter read the motion as put by Dr. Glover and we will see if it covers the whole matter.

The same was read.

DR. EISENMAN: I was going to suggest that you increase the committee from three to five.

DR. GLOVER: I will accept that.

The motion was seconded.

PRESIDENT NORTON: That covers you point, Mr. Bolton?

MR. BOLTON: I think it should provide for a test that is reliable. Dr. Lucky wanted to have some certain result tested by a committee, and if that covers it, all right; if not, I would like to have it made more specific, in accordance with Dr. Lucky's suggestion.
PRESIDENT NORTON: I will call upon Dr. Lucky to say it it covers what he had in mind.

DR. LUCKY: I intended to leave the impression that I had perfect confidence in the reliability of the tuberculin test when properly used. If that is what you mean—as a diagnostic agent—I have perfect confidence in the tuberculin test. It has been very truthful to me, and I raised the question as to what we should do with tuberculous cattle.

I would like to suggest that a fourth provision be added to the resolution, namely, the advisability of shipping tuberculous cattle from one state to another for immediate slaughter. I would like to have that embodied in Dr. Glover's resolution as a fourth provision and have the recommendations of the committee upon that point.

DR. LAMB: It occurs to me that this committee, if appointed, will be a most important one, and for it to meet, consult and report to this body before adjournment, would give it very little time, and for this association to put its stamp of approval upon the report of such committee would be a very serious matter. I would therefore suggest that the committee be appointed, as per motion, and their duty defined to whatever the association sees fit, and that they report at the meeting of the association a year hence. This would give them time to thoroughly cover the ground and arrive at a conclusion as to the best possible mode of dealing with this matter. I think consultation, even of eminent authorities, for a period of two or three days, is altogether too short, and it would meet with my approval far better if the committee report one year from now rather than in two days.

DR. CARY: There are some objections to that. A good many here, wish some definite action to be taken at this time. While definite results cannot be obtained in that time, some of us who have been thinking of this thing longer than three days, may suggest some things as relatively safe. I do not think there is anything absolute in this line of work, to which we could not find an exception, but I do believe there are a few things that ought to be touched up right here for the benefit of some, who are acting as state veterinarians. I do believe this question of shipping cattle interstate, and a few other similar questions, can be relatively well taken up. This committee can be continued, if desired, after you hear the report, for another year, but just now there ought to be some relatively definite rule by which the body can act.
PRESIDENT NORTON: If I may be excused for saying just a word in this connection: I intended to say when I was talking with Dr. Lucky about this fourth section, not only that diseased cattle shipped from one state to another, but also dairy cattle shipped from one state to another, should be accompanied by a certificate of tuberculin test. If Missouri breeders knew they could not ship their cattle to another place unless accompanied by a certificate of tuberculin test it would be of great assistance to Dr. Lucky in his work. Arizona requires the tuberculin test, and, as state veterinarians, that if you encourage the tuberculin test before cattle are shipped out for breeding purposes it will prevent new centers of infection and will be a great step in advance for all of us, south and west, where tuberculosis, as all agree, is not prevalent. I think this last resolution should include the suggestion whether it is wise or not to insist upon the tuberculin test as far as possible for interstate shipments. Are there any further remarks?

JUDGE HANKINS: I want to speak from a layman's standpoint—I am not a veterinarian. Several years ago, Illinois sat down on the tuberculin proposition, Texas, following, has been trying to keep out cattle infected with tuberculosis. But we received a notice from Illinois, some years ago, that the courts had tied their hands and they could not do anything more. Missouri also threw up her hands. At that time we allowed Nebraska to come in without inspection (we did not think they had tuberculosis there), also Kansas. Texas fooled along about it and tried to keep you out the best she could. Texas is about the hardest place to get action in the courts you ever saw. Now the proposition we have got to run up against is this: You men are all talking about the fact that tuberculosis from the animal can be taken to the human. I want to know by what authority you say that, I want our legislature to know that such is the case. If any of you can get up and say to me that tuberculosis can be carried from the bovine of the human, we want to know it.

DR. KNOWLES: That is a very important point which the gentleman has brought up and one that I think Dr. Sanborn answers thoroughly in one of his late papers on tuberculosis, read before the American Health Association. But I would like to recite for the gentleman's benefit a little experience of mine relative to a herd that I mentioned a while ago in my remarks—a herd in which we had 140 killed out of 220. The owner had been a dairyman in the
city of Butte, Montana, for about twenty years. His predecessor had owned the same herd—a herd of Holstein cattle, many of them pure bred. He was supposed to have the cleanest and most sanitary dairy in that part of the country, and as a consequence many of the citizens of Butte bought his milk for the special purpose of infant feeding. I know one gentleman, now a resident of Bozeman in our state, who had an only child, a boy now six years old. He was raised from infancy on milk from this herd and now has extensive mesenteric tuberculosis. The father has taken the child to all the specialists of the East. In making inquiries they have invariably asked the family history which has been good; no tuberculosis in either his or his wife's family. They then asked if he knew anything about the milk supply, which of course he didn't, but they were uniformly of the opinion that the child became infected from milk. That is a brief history of one out of five cases that came under my personal supervision; and of course how many others were infected out of this one dairy, I do not know. There are dozens and dozens of instances of that kind that ought to be convincing enough to satisfy the most fastidious.

DR. GLOVER: Of course this is all circumstantial evidence, not direct, and we have plenty of it. We have yet to find the first man who has sufficient faith within him to submit to a few hypos of bovine tuberculosis, therefore the evidence is not complete. It is all circumstantial, but it is so strong it must be admitted. In this motion I made I merely suggested two or three of the most important things that happened to come into my head. My idea was to make this motion broad-guaged and to include whatever was of importance, so as to get the sense of this meeting in regard to the whole subject, and I would include in that, the suggestion of Dr. Lucky, and also suggest a few remarks briefly but to the point, as to the evidence we have that bovine and human tuberculosis are inter-transmissible.

Mr. Chairman, just to get the sense of this meeting I move that a committee of three be appointed to accumulate during the coming year, evidence showing that bovine tuberculosis is communicable to the human family.

Seconded.

DR. DINWIDDIE: I think the doctor means to say that a committee be appointed to accumulate evidence showing whether or not bovine tuberculosis is communicable.
DR. LUCKY: I accept the amendment.

PRESIDENT NORTON: You have all heard the motion. Any remarks?

MR. BOLTON: Why not make this committee continuous and permanent, instead of appointing a separate committee?

PRESIDENT NORTON: Dr. Lucky's thought was, that this was a special feature of looking up the evidence of the transmissability of the disease from one to the other.

A Member: That would be enough for one committee.

PRESIDENT NORTON: That is a different committee from the other. All in favor of the appointment of this committee as moved signify by saying "aye", contrary "no"

The motion was carried.

DR. KNOWLES: If it is proper at this time, I should like to move the appointment of a committee to consider the advisability of a recommendation to the various states of uniformity of state veterinary and sanitary legislation.

Motion seconded and carried.

DR. NORTON: I will simply state that was the purpose of my entire paper, to lead us to see the importance of getting definite results from these meetings, that can be used by the various states and territories which have laws or are trying to enact them. A committee of three, did you say, Dr. Knowles?

DR. KNOWLES: I will leave that to the discretion of the chair. Probably five would be better.

PRESIDENT NORTON: I will call upon Dr. Stewart, who has been in the employ of the government for several years, and ask him if he has any suggestions that would assist us. We will give him the privilege of the floor today if he happens to be present.

DR. STEWART: I am here to learn rather than to instruct. I find here a body of gentlemen who are giving the best possible thought to very large problems about which I am not conversant, or at least not so conversant as I hope to be. The thing that impressed me most as coming out of the president's paper and the remarks I have heard, is the necessity of public education of the character of work you are doing. I do not doubt for a moment that all of you have a pretty good idea of the importance of publication; and yet I believe it is not made use of to the extent that it might be, to the advancement of the cause you are here to promote. Perhaps Dr. Lovejoy knows the value of newspapers as well as anyone.
DR. LOVEJOY: Yes.

DR. STEWART: Dr. Lucky is learning quite rapidly the value of the press. The state has a sort of bureau of animal industry in the state board of agriculture, which publishes monthly a little bulletin or magazine, and I see in this publication articles bearing upon sanitary science. If there are such publications in other states, which are reaching out to the cattle producing people, I believe they would gladly incorporate in their bulletins reports of just such meetings as this and the results obtained in the experiments that Dr. Lucky is going to undertake. If he carries out the experiments that he has outlined here, it seems to me that the results ought to be favorable to the cause of state sanitation, and I believe they will be. Reports of the experiment could be published and spread among the cattle interests of the state, generously and generally, and it would advance the cause very gratly. In nearly every state we can get close to the principal papers and they will gladly publish such articles as bear upon subjects which are of interest to us. The great trouble has been, for instance, in the American Veterinarian Medical Association, to secure action, when it is needed, by one who felt he could do some good in his locality, and I have advocated (but we have never got it to work out exactly), a committee on intelligence and education which should become, as it were, an editing committee, and when they found a desirable article for the education of the people, that they should procure clippings and send them to the various members who wanted to do educational work in their localities or where it would do the most good. I presume this organization has abundant funds to publish its own proceedings, but you need even wider publication than that. Other things occur which it is very important that the public should know. It seems to me that you can provide a way to collect such material as I have mentioned, and you would do yourselves and humanity in general a great service.

DR. KNQWLES: Dr. Stwart's suggestion is a very wise one and should be considered by the association. Believing that the press should have the salient features of this meeting, I therefore move the appointment of a press committee, and recommend that Dr. Lovejoy be chairman of the committee.

Motion seconded and carried.

At this time, 12:40 P. M., the Association took a recess until 2:30 P. M.
Tuesday Afternoon, August 23, 1904.

The meeting was called to order at 2:45 p. m. with President Norton in the chair.

PRESIDENT NORTON: The first paper is by Dr. Austin Peters on “Some Observations Upon the Suppression and Control of Communicable Diseases Among Domestic Animals.”

In the absence of Dr. Austin Peters, the paper was read by Dr. Ward of St. Paul, as follows:

SOME OBSERVATIONS UPON THE PREVENTION, SUPPRESSION AND CONTROL OF CERTAIN COMMUNICABLE DISEASES AMONG DOMESTIC ANIMALS.

By Austin Peters, M. R. C. V. S., Chief of the Cattle Bureau of the Massachusetts State Board of Agriculture.

An article by Dr. D. E. Salmon, Chief of the U. S. Bureau of Animal Industry, in the Yearbook of the U. S. Department of Agriculture for 1903, entitled “Relations of the Federal Government to Control of Contagious Diseases of Animals,” has been my inspiration for the following brief remarks.

The U. S. Bureau of Animal Industry was organized in 1884 as a successor to the U. S. Treasury Department’s Cattle Commission, which was appointed a few years previously to investigate and report upon the existence of, and danger from contagious pleuro-pneumonia among cattle in the United States.

It was the necessity for stamping out contagious pleuro-pneumonia that brought the U. S. Bureau of Animal Industry into existence. Since then it has developed until it has become a Bureau of Animal Industry in the broadest sense, not only playing an important part in the control and eradication of contagious diseases among domestic animals, but inspecting animals and their products for export and interstate commerce, studying the breeding of animals, their sources of supply and the foreign markets for our surplus, the management of the dairy herd, and investigating contagious diseases, their nature and causes, beside maintaining quarantine stations to keep out European plagues, and enforcing quarantine rules and regulations for the protection of one section of this great country from diseases indigenous to other portions.

In 1859 contagious pleuro-pneumonia was imported into Massachusetts from Europe, by 1864 it was eradicated by State authority; if
this had been done in New York and New Jersey the birth of the U. S. Bureau of Animal Industry would have been deferred for several years, but the necessity for such a bureau would sooner or later have become apparent and its ultimate establishment would have been assured.

As Dr. Salmon truly says in his article: “The stamping out of diseases as they exist on farms and ranches would seem to come under the police power of the individual States, but when a disease has spread to any considerable extent, experience has shown that even the largest and wealthiest States are unable to accomplish this successfully without the co-operation of the General Government.” If he had substituted will not or don’t choose to for the word unable it would perhaps have been more nearly correct. Massachusetts has shown that a State can stamp out contagious pleuro-pneumonia, while in New York State it was allowed to spread until it invaded New Jersey, Pennsylvania, Maryland, Delaware and Virginia, and finally in 1883 it was carried west of the Alleghanies to Ohio, Kentucky, Illinois and Missouri, and would never have been eradicated from this continent had it not been for the intervention of the federal authority.

A good deal of ridicule was made of the late lamented General Hancock for saying that “the tariff is a local issue,” yet subsequent events have shown that he knew what he was talking about, although he may not have made his point quite clear to everybody. What suits people in one locality in such a great country as this may not be exactly what the people in another section desire, and measures for the greatest good of the greatest number will have to prevail in the end. The same is true to a certain extent in regard to the contagious diseases of domestic animals, and what is of especial interest to the live stock owners in one part of the country is less so in another, because a disease that is of vital importance in one section is rare or unknown in another section. It may be that the infrequency of a contagious disease in one section is due to the precautions taken by the Bureau of Animal Industry to prevent its spread from an infested area to one in which it is practically unknown. An evil is much greater in the eyes of the inhabitants of a locality where its ravages are seen, than to those living at a distant point, although they may not overestimate the dangers arising from it.

For example, the depredations of the cotton boll weevil excite more apprehension among the cotton planters in Texas and Louisiana than elsewhere, yet this does not make it any less of a national danger.
Again, the injury done to forest trees in Massachusetts by the gypsy moth attracts a great deal of attention in eastern Massachusetts, where it has attained a foothold, while in many portions of the country it would be unknown if it were mentioned, yet if it extends to other states it will undoubtedly prove of great damage to our fruit and shade trees and our forests; it is a public danger as well as the cotton boll weevil, and while it is not yet recognized as a menace to our lumber industry, it nevertheless is a matter of national importance and demands the assistance of the U. S. Department of Agriculture in efforts for its extirpation, as much as the cotton growing states require the aid of the national government in the eradication of the cotton boll weevil.

The same is true of our animal plagues. At a meeting of stockmen from the West and Southwest one finds that the subject of the greatest interest is Texas fever, or did until within a year or two, when mange in cattle and scab in sheep have demanded a share of their attention, yet in Massachusetts but two outbreaks of Texas fever have occurred during the past ten years; these were on a small scale, and were undoubtedly due to the disregard by railroad companies of the rules and regulations of the U. S. Department of Agriculture, requiring that separate pens shall be maintained for resting cattle from the quarantine districts from those used for northern cattle.

In August, 1897, an outbreak of Texas fever occurred in Massachusetts and also in Connecticut that was clearly traceable to the stock yards of the New York Central and Hudson River Railroad. The lines of travel of the cattle brought to Massachusetts that developed Texas fever, and of those taken to Connecticut, crossed at West Albany, and it was found no pains had been taken at this point to provide separate pens for northern and southern cattle. It was so evident a violation of the rules and regulations of the Bureau of Animal Industry that all the railroad company could do was to settle with the owners for the creatures that died. Another outbreak, confined to a carload of Michigan cattle brought to Massachusetts, occurred in July, 1902. As these cattle were unloaded twice en route to rest, first at Detroit and again at Suspension Bridge, it was not clear where the disease was acquired, but it was probably at Suspension Bridge, as there were only four small pens there and quarantine cattle had been unloaded at that point, and it is not clear that any pains were taken to maintain separate pens at these yards for south-
ern and northern cattle. Thus far the owner has been unable to obtain any redress from the railroad company.

Quarantine cattle are brought to Massachusetts in the summer, but the State does not allow them to be unloaded except at abattoirs, and they are driven on roads and into pens over which no other cattle pass except for immediate slaughter, and the rules and regulations of the U. S. Bureau of Animal Industry require cars used for quarantine cattle to be disinfected before being used again for neat stock. Hence the danger from this disease is reduced to a minimum, and does not excite the apprehension and interest with us in the East that it does with those residing in closer proximity to the quarantine line.

The recent outbreak of foot and mouth disease in New England did not excite the interest and alarm in the West that it might, and should have, because it was so remote from the great cattle growing regions, yet it was one of the gravest dangers that ever menaced our livestock interests, and if it had escaped beyond control would have proved exactly what Secretary Wilson realized, "nothing less than a national calamity."

The prevention and control of the contagious diseases of animals require a knowledge of the causes, history and nature of each. These diseases are due to such varied causes that they are not only of the greatest scientific interest to pathologists, but to biologists and zoologists as well. Some of them are the result of animal parasites conveyed from one animal to another, so large as to be clearly organized animals themselves, such as mange among cattle and scab among sheep. Others are due to microscopic organisms, of such a low form as to make it difficult to differentiate whether they are of an animal or vegetable nature.

The micro-organism of Texas fever, for example, is due to a low form of animal organism, a parasite found in the red blood cells, known as the *protoplasma bigeminum*, the organism being conveyed from infected to healthy cattle by the tick (*boophilus annulatus*), as we all know. Some forms of disease, on the other hand, are due to minute germs of vegetable origin, whose nature and character are well understood. Tuberculosis is an example, caused by the *bacillus of tuberculosis*, another is glanders caused by the *bacillus malleus*; the septicaemias are also due to organisms belonging to the vegetable kingdom.
There are other diseases the etiology of which is less understood, and the micro-organism, whether it is of a vegetable or animal origin, remain to be discovered. Rabies is an example of this group, as is also foot and mouth disease.

Recent investigations by Prof. Wm. T. Councilman, of the Harvard Medical School, indicate that small-pox is due to a parasitic protozoan, the *cytoryctes*, and judging from the characteristics of the diseases, it does not seem unlikely that scarlet fever and foot and mouth disease may be due to organisms of a similar nature.

One of the best means of controlling a contagious animal disease is the stamping-out method, which consists in killing all diseased and exposed animals, and disinfecting the premises occupied by those infected. This plan of eradicating contagious diseases has been twice demonstrated to citizens of the United States by the measures adopted for extirpating contagious pleuro-pneumonia and more recently by the stamping out of foot and mouth disease in New England, in the winter of 1902 and 1903. But it is an expensive method, and not possible or necessary in all instances.

Another way of controlling these maladies is by preventing the importation of animals that may be a source of danger, from an infected district into a district where a given disease is unknown, by the maintenance and enforcement of suitable quarantine regulations.

The U. S. Bureau of Animal Industry is doing this to a certain extent. It maintains quarantine stations at ports of entry on our sea coast and borders, to prevent the entrance into the United States of any of the animal plagues of the old world, and also requires a tuberculin test upon neat cattle over six months old imported for breeding purposes, with the exception of cattle direct from the Channel islands, among which tuberculosis seems to be unknown. In our interstate commerce the Bureau of Animal Industry has adopted rules and regulations and quarantine measures for the prevention and suppression of Texas fever, mange among cattle, and sheep scab, which are good as far as these diseases are concerned, but more might be done along the same lines in connection with other contagious diseases.

Much might be done towards staying the spread of tuberculosis, and preventing its obtaining a foothold in localities where it has been hitherto unknown, if the Bureau of Animal Industry could adopt an order requiring that its agents test with tuberculin prior to shipment all neat cattle over six months old, intended for any other pur-
pose than immediate slaughter, which are to be shipped from one state into another, any animals reacting to tuberculin to remain in the Commonwealth where they are tested, and only those passing the test to be exported into another state; reacting animals to be reported to the state authorities to be dealt with according to the law of the state where they are owned.

The Bureau of Animal Industry requires a tuberculin test on all neat cattle over six months old imported into the United States, except that within the past two years it has exempted Jerseys and Guernseys imported directly from the Channel islands, because bovine tuberculosis appears to be practically unknown on the islands. This discrimination does not extend, however, to Jerseys and Guernseys imported from Great Britain, as animals of these breeds kept and bred in England are found to be as likely to respond to the tuberculin test as those of any other breeds.

Of 53 Guernsey cattle tested by an agent of the U. S. Bureau of Animal Industry on the island in 1902 and 1903, none reacted, while out of 57 tested in England 11 reacted, or nearly 20 per cent. Out of 524 Jerseys tested on the island during this time, but one animal failed to pass the test, and in view of these facts it is doubtful if it was tuberculous, while in England out of 42 Jerseys tested 23 reacted to tuberculin, or nearly 55 per cent. (Vide Nineteenth Annual Report of B. A. I., 1902.)

The Jersey and Guernsey breeders never made any opposition to the rules and regulations of the Bureau of Animal Industry while it required a tuberculin test on imported animals of these breeds, because most of them came from the Channel islands and never reacted to the test, hence no loss was occasioned to the importers and no objections came from them. On the other hand, the Shorthorn breeders have made a great outcry over these requirements, and through the columns of the "Breeders' Gazette" have raised every imaginable objection, claiming that tuberculin injured their animals and was a detriment to their health, the real reason being that nearly 25 per cent of the Shorthorns tested reacted to tuberculin. We look with the utmost contempt upon a man who will knowingly sell his neighbor a glandered horse, yet it is surprising the number of patriots we have who stand well in the community who do not have the slightest scruple about selling a brother farmer a bull or cow infected with tuberculosis or contagious abortion, and even in the case of tuberculosis claiming the privilege of importing and breeding bovine tuber-
culosis as one of their constitutional rights. There is ample reason to believe that there are numerous herds in the United States that are as badly infected with tuberculosis as many of the herds in England, and if a breeder should be protected from tuberculosis from abroad, why should he not be protected in the same way from bovine tuberculosis existing in another State? If he does not desire it, at least his neighbors would if they realized the importance and ravages of what Walley designated as one of "the four great bovine scourges," the others being rinderpest, contagious pleuro-pneumonia, and foot and mouth disease.

Many a farmer traces, to his cost, the origin of tuberculosis in his herd, to some bull bought to cross upon his stock with the object of improving it.

Massachusetts requires that all neat cattle brought into the State, except beees for immediate slaughter and calves under six months old, shall pass a tuberculin test; animals tested after arrival in the State and believed to be diseased are killed, the owner receiving no compensation from the State, unless no lesions of disease are found, in which case he must be reimbursed for a healthy animal. If the animal is so slightly diseased as to pass a slaughter house examination, the owner receives what the butcher will allow; as most of the reacting cattle killed are milch cows, the beef value is not a great deal. This regulation was first put in force by the Massachusetts Cattle Commission in November, 1894, at the stock yards in Brighton, the great live stock center of the State, where a weekly market of milch cows is held, most of the cattle coming from northern New England, New York State, and also from points within the limits of the Commonwealth. The cattle arrive Tuesday morning and the market is held Wednesday. This is the supply for all the milk men of Eastern Massachusetts, here new milch cows are brought and old milked-out cows disposed of. Many of the cows go to Rhode Island also; it was a heifer sold at the Brighton yards in September, 1902, that conveyed foot and mouth disease to that State. All cattle from without the state, except beees for immediate slaughter, were tested with tuberculin and reacting animals killed. During the first six weeks 1432 head were tested, of which 110, or over 6 per cent, reacted and were killed; when the autopsy were made 21 were found to be free from disease and the State had to pay for them. All this was carried on in the face of the most strenuous opposition from the drovers and cow dealers, whether they lived within the limits of the
Commonwealth or not. As these errors proved expensive it was decided that animals in a strange place and under the excitement of transportation were not fit subjects for a tuberculin test, and arrangements were made allowing the cattle dealers to employ veterinarians at their own expense in the adjoining States, and bring certificates of test made out upon blanks furnished by the Cattle Commission, with their animals, each week. Cattle brought to other points had to be tested also and if the owner could not furnish satisfactory certificates of test the cattle were held in quarantine until he had them tested. This course was pursued for several years, certificates of test were accepted only from persons approved by the Massachusetts Cattle Commission, but the lists had to be constantly revised, as it seemed to be the principal object in life of some of the cattle dealers to corrupt the men making the tests, until some filled out the certificates without using tuberculin at all. Finally matters became so unsatisfactory that it was decided, in September, 1902, to hold all cattle brought to Brighton upon which a test is required at the stock yards and test them as originally intended in 1894, retesting animals reacting animals be held over a week and retested with a double dose, an animal reacting a second time to be killed. This plan seems to have eliminated the errors made in 1894, and it is rarely that one is killed now in which lesions cannot be found upon post-mortem examination. Cattle coming to other points are still brought in subject to a certificate of test made by a person approved by the Chief of the Cattle Bureau, but as the law now stands persons who are citizens of Massachusetts are entitled to have cattle tested free of expense to them by an agent of the Cattle Bureau of the Massachusetts State Board of Agriculture (which succeeded the Cattle Commission in April, 1902), therefore many cattle men prefer to have the State test the animals after arrival and risk losing one occasionally than to go to the expense of paying for having the work done at the point of shipment. A present most of the cattle upon which a test is required are tested after arrival within the limits of the State.

From what has been said above it will be seen that the work has been in many instances unsatisfactory, that much of it has been dishonestly performed, and that when it is done by the State it is expensive.

The condition of affairs in Massachusetts has been given as an example because the writer is familiar with them, but what has been said applies to all States, that require a tuberculin test upon cattle
brought into them for dairy or breeding purposes, and it is to be regreted that this is not a requirement of every State. If this work could be taken up by the Bureau of Animal Industry it would have the same effect as though the tuberculin test upon all neat cattle over six months old except beeves for immediate slaughter were a requirement of all the States, it would do away with a great deal of humbug and dishonesty, and save money to some states that could be spent in other branches of the work.

At present it costs Massachusetts about $12,000.00 per year to test the cattle brought in from other states upon which a test is required, the U. S. Bureau of Animal Industry furnishes tuberculin free, if a record of all tests made, with reports of the autopsies upon reacting animals, is sent to it. It does not seem unlikely that bovine tuberculosis is rapidly becoming more prevalent in many localities than is generally supposed, the disease not only attacking cattle but swine as well. The past year or two many swine have been condemned in the western packing houses as tuberculous, and as swine usually acquire this disease from cattle by either running on the manure in barn cellars under them, or by being fed skim milk and butter milk from tuberculous cows, or upon slaughter house offal where tuberculous cows are killed, it would seem to indicate that tuberculosis is already acquiring quite a foothold in sections in the West where dairying has been taken up within the past few years.

Remember that one way to prevent a contagious disease is to keep it out of uninfected areas. To prevent bovine tuberculosis in localities where it has not yet obtained a foothold, keep it out. If the U. S. Bureau of Animal Industry will check the exportation of bovine tuberculosis from one state to another. It then becomes the duty of each state to suppress the disease as far as possible within its own borders. A lack of men and money may be the excuse for not undertaking this labor; if such be the case, then Congress should be asked to furnish more funds in sufficient amounts for this purpose, and no doubt the services of men capable of doing the work could be obtained, and result in the work being done more honestly and carefully than it has been done in many instances in the past.

More comments might be made upon the suppression and control of contagious animal-diseases, but as this paper is intended to be a strong plea for the tuberculin testing, by the U. S. Bureau of Animal Industry, of neat cattle in interstate commerce destined for dairy and
breeding purposes, the argument will carry more force by closing here than by digressing further from the point."

PRESIDENT NORTON: Gentlemen, you have heard the paper of Dr. Peters, and it is open for discussion. I will take the liberty of calling upon Dr. Law, of New York, who in his younger days, certainly did much along sanitary lines, in the field, and now he is teaching hundreds of younger men to do the same kind of work. In experience and ability, he certainly is entitled to be the father of the American veterinary and sanitary boards, and we would be glad to hear from him.

DR. LAW: There are some points in the remarks of Dr. Peters that perhaps it might be well to supplement. There is the question of the existence or non-existence of tuberculosis on the Channel islands. I have frequently heard it claimed to be non-existent there. If it could be shown that tuberculosis is absolutely non-existent in cattle on the Channel Islands, would it not go a long way towards establishing the difference between the tubercle bacillus in man and the tubercle bacillus in animals? Everywhere else, practically, where tuberculosis exists in animals it also exists in man; where it exists in man it exists in animals. They go side by side. And that is one of the strongest arguments for the intratransmission of the bacillus from man to animals. Of course I am not seeking in any way to contradict the statement (which I believe in implicity) that after the germ has grown for a great many generations in man it has less tendency to grow in the system of the bovine animal; or after it has grown a great many generations in the bovine animal it has less disposition to grow in the system of man. But there are so many cases that are quite unanswerable in which we have the best circumstantial evidence of its transmission from animals to man, and so many more, in which it has been transmitted from man to animals, by experimental feeding or experimental inoculation. Take the latest instance which I call to mind, that of the Royal Commission of England. Of course I do not keep the figures in my mind, but I will simply say that the large proportion of the experiments we have made with the tubercle bacillus from man, inoculated upon young cattle, proved successful. In a great many cases it produced generalized tuberculosis. (In my judgment it has been given a fair test.) Koch took cattle in the very prime of life, nineteen cases which he reported, and he failed to produce generalized tuberculosis. He did not fail any more than others, any more than Theobald Smith failed, to produce
local tuberculosis in the animals inoculated, but he produced generalized tuberculosis. Therefore, he said the tubercle bacillus as found in man is not communicable to the bovine animal; it cannot make its home, so as to become generalized, in the bovine animal. In the other direction, from the animal to the man, we have many cases on record where the transmission took place by direct inoculation, not intentionally, but none the less real. A friend of mine, in Philadelphia, who has chosen not to publish the case over his own name, but whose word I implicitly believe, showed me that he was inoculated on the back of the hand in making a post-mortem of a very badly tuberculous cow. The sore would not heal; it remained for months. Finally he had the ulcerated edge of the wound cut out and examined in the bacteriological laboratory of the University of Pennsylvania, and the tubercle bacillus there was unmistakable. Luckily he has not taken generalized tuberculosis. But there is another case over the name of a veterinarian in Westchester county, Pennsylvania where infection took place in precisely the same way. Every little while a case of that kind comes up and the infection becomes generalized. So that we must accept one of two things: either that the tubercle bacillus passes, not very infrequently, from the one race to the other, from man to the bovine animal, or from the bovine animal to man; or, otherwise, that the bovine animal, at times, harbors the tubercle bacillus of man, and the human being at times harbors the tubercle bacillus of the bovine animal. Now I do not believe that there are two. I believe that there is simply a habit of life that the bacillus acquires from long environment in man, in one case, and in cattle in the other, but the frequent transmissions show that there is a possibility of transmission from one to the other, and no one can positively say that a given bacillus is that of the bovine animal and another given bacillus is that of the human being. There is always a certain degree of danger of the transmission from the one to the other. It is quite evident that we have here a danger to deal with as regards the intercommunicability between man and animals.

We can recall men who have shown incipient tuberculosis and went to living in the open air, say in the North. One of our Cornell students had to give up his work in college; he went to Texas and hired himself out as a shepherd, and for years, he told me, he never slept under a roof. He slept under a bush of some kind, but never under a roof. When he came back to Ithica he assured me that he didn't think he could catch a cold, his lungs were sound as any-
body's. He lives today and is a strong, healthy, hearty man. There are very many cases in which men recover, apparently, as the result of open-air life. I wish you would take that into account in considering the question of the non-existence of tuberculosis in the Jersey and Guernsey cattle. I would not accept a Jersey cow from the Islands with absolute confidence that it was free from tuberculosis; it would not do any harm to subject it to the test. It is possible it might contract the disease from another cow in the Islands, or from a man, or a hog. Still, in the main, there is undoubtedly some basis for the claim that tuberculosis is absent from the Islands. We find the same thing constantly before us in the Northeast, where our stock are shut up indoors in the winter season. I find districts in New York—which is doubtless one of the states most affected by the tubercle in cattle—I find districts in which all the animals pass muster under the tuberculin test; I find some other localities where ninety-nine per cent of them are tuberculosis, as shown by the test. It is a mere question of their having lived indoors, of having come in contact with the infecting products of other animals and, to a certain extent, of men.

I would like, having said this much as regards the susceptibility of the Channel Island cattle, of the danger or lack of danger in connection with the introduction of cattle directly from the Channel Islands—I would like to commend our essayist's remarks on the subject of interstate testing. I felt that, for the last eight or ten years, very strongly with regard to my own state of New York. We had, I think, in New York, the very worst possible conditions. I can not conceive of conditions being worse than those we have today in the state of New York, as regards the introduction of tuberculous cattle. The demand on the part of several of the New England states, New Jersey and Pennsylvania, for a tuberculin test, in some cases of all milch cows, in others of all stock cattle that are being introduced into the state, affects us in this way: that being in the line of traffic from the west, the cattle are very commonly brought on to New York to be tested in some New York stock yards, Buffalo or elsewhere. There is no provision to have them tested either by the Bureau of Animal Industry or by the officials of the State of New York, but the owner of the cattle, or his agent, has them tested by someone that he calls in for the purpose. He receives a certificate for the animals that have passed muster; he sends the certificate on with them into the state where it is demanded. But those that have reacted to the
tuberculin test are left there in the stock yards and something has to be done with them. There is no official in charge of them who, necessarily, knows anything whatever of the test, and the result is that the animal, unless it is really very far gone and shows serious illness, is sold in New York State. The thing has come to such a point today that I would not take an animal from a New York State herd without a test; I would not take the owner's word for it if he told me he had not any disease in his herd and had not had for a great many years; I would have the test. I had a very interesting experience, in connection with a large state asylum, with a herd of 150 or more cattle, nearly twenty years ago, before the day of tuberculin. I examined the cattle and condemned one-half of them. The pigs were dying in great numbers. The cattle were being killed and fed to the inmates, and the pigs were nearly all tuberculous. To make a long story short, we began weeding out every animal that showed a cough, unthriftiness, any trouble with the lungs or bowels, or with the mammary glands, or with the superficial lymph glands, that could easily be reached. Whenever any animal showed anything suspicious she was taken and made beef of. These offensive animals were weeded out, and in a year or two we got the herd clear. When the tuberculin test came in they were tuberculined, and stood the test. They kept clear until the old steward of the institution died; a new steward came in, and he thought it was more profitable to buy cattle in the open market. He went to a herd of steers, picked the best cattle he could find and bought them. The next time I went to the institution I found a large majority of them were tuberculous, and since that time we have not got the herd clear of tuberculosis. We are now raising the calves, even from tuberculous animals, on pasteurized milk, or milk that has been heated to even a little more than pasteurization. We are raising the heifers from the herd at large, and hope within a year or two to be entirely clear. Now there is one example of what buying from our New York herds will do.

I had another example last winter, in the case of four animals that came to me at the college. They had been brought to the station for experimental purposes. Two of them were thorough-bred Guernseys and two Ayrshires. The former came with certificates of tuberculin test; the latter had no certificate. By and by one of the Guernseys began to have bloating after meals, and one of my assistants treated her for a little while. I went up to see her, and said, "That animal appears to have tuberculosis; we had best test
The four of them were tested, and every one of them reacted. We killed them and found the four tuberculous. These cattle were brought out of thorough-bred herds, and therefore supposed to be comparatively safe. I may say that I look upon these herds as about the most dangerous we can find. In the first place, they are kept much more closely housed, as a rule, than ordinary, common herds, although they may be better cared for otherwise. The females are kept as long as they will breed, because the progeny is the most profitable product, as a rule; and we know very well that the older a cow is the greater her chance of being tuberculous and of having extensive tuberculosis, and if we allow them to live in that condition the more they propagate (when they are indoors particularly), to the others. In that way I think we are in for greater danger in New York, and I would say the same of other states, we are in far greater danger in buying from a thorough-bred herd than from one that is cross-bred.

Now, I don't know that we can do very much for this—that is, in New York—excepting to advise the owners of thorough-bred herds to test every animal. I tried to have a bill passed in the legislature to put us on a level with the neighboring states and to give us the same protection of a tuberculin test on all stock animals introduced into the state, but there was too much power at Buffalo and the bill never saw the light of day. It died in the committee. Things have been going from bad to worse. That is a great slap-down, but I do not hesitate to speak whenever the matter comes up. When things become so bad that the people suffer, then they will rise and demand a change.

I think Dr. Peters suggestion that testing at the borders of the state by the Bureau of Animal Industry would be, to a very large extent, a protection. It certainly would save us a great deal if properly carried out. There would be no need of doing testing at each state line if the animal was tested at the last state line it passed, but it would be a protection and a guarantee; it would furnish a guaranteed certificate for all ahead of the point of testing. And, above all, where a state, like that of New York, will not act for the protection of its own herd, the national government ought to be urged, if possible, to act in its place. It certainly can act in the matter of interstate commerce.

I feel that the subject of tuberculosis is one that should be attended to with the greatest possible care. As I am right in the
middle of it, perhaps I am unduly interested, and perhaps I am saying too much on the subject. But apart from that altogether—and I do not yield to anybody in the importance of the protection of human health from tuberculous animals and their products, that ought to be of primary consideration—but apart from that altogether, the protection of our herds ought to warrant a very active campaign against tuberculosis. As Dr. Peters said, if the herds of the state deserve to be protected against tuberculosis introduced from outside the state, surely they deserve to be protected against tuberculosis from herds within the state. "My colleague, the new director of the College of Agriculture, was betrayed into saying that the Department of Agriculture at Albany looked after the health of the animals. Well, the Department of Agriculture at Albany does not look after the health of the animals. If it did want to look after the health of those animals it has not got the necessary legislation. It would be perfectly possible to deal with New York, district by district, or it would pay New York very well to insist upon testing with tuberculin by state officials. I do not mean by anybody and everybody, but by a state official who has the authority and who has also the interest in it. I say have cattle that are passed from one herd to another tested with tuberculin, so that the new herd into which they go will not be affected. In this way we would very quickly get to know every herd that contains tuberculous animals. We could test the whole herd. We could eliminate the disease by the elimination of the animals; or, if that is not to be allowed, we can separate them, as Senator Edwards is doing in his herd near Ottawa, keep them absolutely apart. But, at any rate, in that way we could get at the root of the thing in a very short time, and we could purify the herds and not allow things to go from bad to worse."

"We have another danger along these lines that tells upon us, and deeply too. In the first place, our neighboring states demand a test for animals carried out of New York into those states for stock purposes. Naturally, if this is carried out as it ought to be, it is only non-tuberculous animals that could be taken into Massachusetts, New Jersey and the other states demanding the test and those that are left us are tuberculous; and, even if they are not all tuberculous, we are concentrating the tuberculous cattle in the herds that are left. We are thus creating in a given area more of the germs; it rises in the air, is inhaled by the animals, and we are deliberately, in that way, increasing tuberculosis in our own herds. Further, one
of our New York dairymen, let us say, goes into Pennsylvania to buy cattle. There is no hindrance to his purchasing animals without a tuberculin test. He can bring any animal he likes into New York without a tuberculin test. But the Pennsylvania man wants to make a good market. If he is not very scrupulous he has his animals tested in private, and sells those that do not pass the test and these are brought into our New York herds. So that on every hand we are being injured. As Dr. Peters said, we ought to have in New York, at the state line, a compulsory test by the Federal government. *(Applause.)*

SECRETARY SMITH: For information I would like to ask a question in line with Dr. Peter's article. He says that it would have the same effect as though the tuberculin test were made upon all neat cattle over six months old. The question I want to ask is, did Dr. Peters assume to say that no calf needs the test under six months old, or that it cannot have tuberculosis in its system until after it passes the six-months age. Dr. Reynolds, perhaps, can answer that, if he is here.

DR. REYNOLDS (Minnesota): Mr. President, I can give my own idea on that. The objections to testing calves too young are two. A calf two months old has, normally, a somewhat high temperature and one that is very easily disturbed. In testing calves of one or two months old, without any injection at all, you take their temperature at one time and it is 101.6, and at another time in the same day it is 102.6. In other words, there seems to be a wider range of temperature in a calf and it seems to be easily disturbed. Personally, I consider the test of a young calf much less reliable than the test of the older animals; and I think it is also true, and universally conceded, that calves under six months of age are not as frequently tuberculous as older calves; it is comparatively rare, and the farther you go down toward birth the lower the percentage present. I do not suppose that Dr. Peters meant to say or suggest that calves under six months of age do not have tuberculosis, but it is very infrequent. There must be some arbitrary limit. Now the question arises with us among the cattle of the University Experiment Farm of Minnesota, twice a year, "Where shall we draw the line as to age?" We put an arbitrary line somewhere. My arbitrary line is at three months; another man might put it at three months, or four months, or two months. But we don't test little calves.
DR. LAW: May I say a word upon that, Mr. Chairman? In the first place, there is no doubt at all that they are susceptible enough. I have made examinations of calves that had extensive tuberculosis. So we cannot consider them as immune at all, in any sense. It is a mere question of exposure. Then another point is, that if we are proceeding upon the line of the extension of tuberculosis we are bound to take in the calves, even if we do occasionally make an error, because they are a little more sensitive to the tuberculin or to excitement apart from the tuberculin. "I think as a rule the calves will show a sufficient rise to make it unquestionable. That has been my experience. But even if it were otherwise, if a calf were to be killed occasionally because of a blunder, it is better to do that, if we are trying to extinguish a disease, than to allow the infection to persist, because it would break out in the future, to our consternation. And that is the point I would like to emphasize. I think the tendency is today—and perhaps it has come more particularly from the advancement of bacteriology, which we cannot get along without, which is our sheet-anchor—to try to secure immunity for the animal. Now I have no objection at all to immunizing man against tuberculosis, as far as we can; but I submit that, even in man, immunization from tuberculosis is always less, or almost always less, then the immunization that is secured in the more acute febrile infectious diseases. We find men who were tuberculous in their early life, living to be seventy years old, and dying with tuberculosis still active. The old ones become inactive, or they have disappeared; a certain number recover, undoubtedly, but I have known men giving up business at 30 because they were going to die of tuberculosis, who lived to seventy and died of something else, and died tuberculous men. Now, if immunization was to be secured, that was at all reliable, by the use of the serums, these men should have been immune long before that. It shows that it is not to be relied upon implicitly. If we are going to stamp out a disease we should stamp it out; we should kill the snake, not scotch it. And so it is with glanders. I was glad to hear Dr. Rutherford remark the other day that he did not think we were justified in trying to cure glanders or to secure immunization from glanders. I think he is quite right."

DR. LUCKY: May I ask Dr. Law if they have any statistics in the state of New York as to the prevalence of tuberculosis in the human family which would indicate any connection with the condition among cattle.
DR. LAW: Relative to the prevalence in cattle, we have not; the prevalence of tuberculosis in man we have.

PRESIDENT NORTON: Is there any further discussion on the subject before we take up Dr. Knowle’s paper? (No response.) If not I will call upon Dr. Knowles.

DR. KNOWLES (Montana): I, unfortunately, misplaced the very short paper I had written, but with your permission desire to have it published in the proceedings. There is so little to say against federal inspection as a means of controlling scabies in cattle and other range stock, that it is a difficult matter to write even a short paper on this topic. The aid of the federal government in eradicating infectious and contagious diseases among range animals is invaluable, particularly where states do not have efficient sanitary laws. You gentlemen here, who are familiar with range conditions, can readily understand that. If you have state regulations that empower you to take charge of a man’s range stock, then you could handle it successfully, without federal intervention, providing you enforce your laws, but if you do not have such laws, then the federal regulations make it an incentive for all owners of live stock to see to it that their animals are free from contagious diseases. We have had in the West (I speak particularly of Montana) a large experience with cattle scab. Fortunately, our sheep inspection laws are efficient enough to permit us to keep the state free from sheep scabes, but there has been some little question about the section of our law dealing with the cattle scab; it has given us quite a little trouble, and the government very kindly stepped in and forced owners to see the necessity of cleaning up a disease that they have always regarded as of no consequence. They now know that the Bureau of Animal Industry regard it as quite a serious matter and one that interferes with the rights of other people outside of Montana, and have promised the Secretary of Agriculture to pass this winter, live stock sanitary laws that will cover all the phases of this question and enables us to successfully deal with scabies from a state point of view. I came here more to learn any objection that some of the members might have to federal inspection than to give any ideas of my own about it. All I can say, gentlemen, is that I believe the stock interests of the United States, particularly the West, owe the Secretary of Agriculture and Dr. Salmon a debt of gratitude that they can never pay, in the eradication of these contagious skin diseases. I should like to have some of the gentlemen raise any objection to it if they can.
DR. LAMB: Let me tell the gentlemen some of the conditions that exist in Colorado—not that I am going to offer any objection to federal inspection. For several years, we have been troubled, as they have in Montana and other states in the West, with this cattle mange. For a considerable number of years cattlemen paid little or no attention to it. About three or four years ago the sanitary board entered upon a system of education regarding mange, and several regulations were issued regarding the dipping of all cattle. These were more or less faithfully carried out; but a year and a half ago, the present live stock commission issued very strenuous and stringent regulations regarding the dipping of cattle, and they have seen to it that these regulations are carried out impartially by everybody. Just before coming away I caused the arrest of three or four who had neglected or refused to dip their cattle according to the regulations, and immediately upon my return, probably twenty-five or thirty more will be arrested for not having complied with the regulations. The reason this has to be done is that the regulations issued three or four years ago were not very strictly enforced, and people were imbued with the idea that the present board—would be just as lenient in regard to the dipping proposition as the previous board had been. But such is not the case. This board proposes that these regulations shall be carried out, and in almost every county of the state the cattle have been dipped regularly twice a year, and some of them dipped twice each spring and each fall, with the result that cattle scabies have decreased, I think I am safe in saying, 80 to 90 per cent in the state of Colorado. I might say that this cattle board has divided the state into infected and non-infected portions, and B. A. I. No. 123 says that all cattle that are moved from our state into an adjoining state must be dipped before moving. That is all very well, except that in some portions of our state people have complied with the regulations faithfully and carefully, and with excellent results, and in other sections they have not; but according to 123 they are all placed on exactly the same level. The man who has dipped and cleaned his cattle of mange is just exactly on a par with a man who, in another section of the state, has not, and this seems to us to conflict with the state authorities and to make nearly all their efforts come to naught, and in the future there will be very little incentive for the state authorities to issue any regulations requiring the dipping of cattle, for the reason that a man will say, "Well, I have dipped my cattle three or four or half a dozen times in the last two years, while
the man in the next county didn't dip at all. I have to dip my cattle just the same, before shipping, as he does, and mine are perfectly clean and his may not be." It seems to me that there ought to be some provision whereby cattle that are absolutely clean and have been dipped thoroughly, promptly and regularly, could be allowed to be shipped to market without being obliged to dip again, the same as a man who has not complied so thoroughly with this state regulation.

DR. KNOWLES: Mr. President, I don't understand B. A. I. order to mean anything of the sort: I recently had a conversation with Dr. Salmon and he assured me that cattle that had been dipped and were clean, or cattle coming from a non-infected district, would be permitted to be shipped interstate without any restrictions; so that we must certainly interpret B. A. I. Order 123 in different ways. Dr. Salmon assured me of that fact. I think you must certainly be in error about that.

DR. LAMB: I trust I am, Dr. Knowles, but I am afraid not, according to the interpretation given by Dr. Clark.

DR. DEAN: I think Dr. Knowles is correct in the interpretation of B. A. I. order 123. It particularly provides that where animals are not infected or exposed to infection there shall be no restrictions whatever upon them. Amendment No. 1 of B. A. I. order 123, provides that where a district is known to be infected, then no cattle shall pass out of that district without being dipped. But I understand that is left to the man in charge of that district. The order is all right, but the interpretation of the inspectors is the trouble.

DR. KNOWLES: That is exactly my understanding of it. If errors are made they are errors on the part of the inspector, not due to the order.

PRESIDENT NORTON: Gentlemen, the question is still before you.

DR. KNOWLES: Well, Mr. Chairman, I should like very much to have somebody give a reasonable objection to federal inspection. I am unable to find one myself, and that is my excuse for writing a very short paper, one page, on this topic. I am very anxious to find a reasonable and intelligent objection to federal inspection, and I would like very much to have somebody express one.

DR. THOMAS: Mr. President, I don't know of any reasonable objection, but I will simply bring up some that I have heard expressed by other men. They object to the federal inspection because
they think the state should do the inspecting; they object to a government man doing work that they feel should be done by a state man. I have heard such objection if that has bearing on the point.

DR. KNOWLES: Yes sir; but I think that is a very reasonable objection, speaking from my point of view. I want you to understand that all my remarks relative to federal inspection refer to interstate shipments. I don't think the government has any right to interfere with state sanitary matters. I think that every state should have thoroughly efficient sanitary laws, and should look after their own internal sanitary matters; but if they do not do so, then I think it is eminently proper that the government should step in and supplant them and see to it that contagious animal diseases are cleaned up. There is only one way to handle interstate transportation of animals where contagious diseases exist, and that is under a strong central head, and under a thorough organization such as Dr. Salmon has given this country—the most efficient system of government live stock sanitation in existence on the globe, and I do not think there can be any reasonable objection of the sort that our friend from Nebraska has mentioned.

SECRETARY SMITH: In connection with the point mentioned by Dr. Knowles, I want to illustrate how the state can cooperate with the B. A. I. in a perfectly satisfactory manner by giving you an illustration of how we handle the question of sheep scab in Illinois. The Bureau of Animal Industry have their inspector at some of the large sheep-feeding plants in Illinois, located along the trunk lines of railroads. At the request of Dr. Salmon, the live stock board of Illinois issued a commission to a Bureau of Animal Industry inspector, as assistant state veterinarian for Illinois, thus legalizing any action, so far as the internal affairs of the state are concerned, that this inspector might take. In other words, we get right behind the Bureau of Animal Industry inspector and hold up his hands, so that if he finds sheep in scab in any of the flocks or in any of the feeding stations in Illinois he has full and complete authority to put those places in quarantine and hold them there until they are cleaned up. We not only find federal inspection, so far as it concerns sheep, in Illinois to be a good thing, but we hold up the man's hands and try to help him do the good work which the inspectors for the Bureau certainly are doing for us.

DR. GLOVER: Mr. President, we are undoubtedly away off on 123. I did not understand, and the people of our state do not under-
stand, it is left to the judgment of inspectors regarding the dipping of cattle to be shipped out this fall. Isn't that true, Dr. Lamb? We consider that it is an iron-clad law, and the stockmen in our state are considerably worked up over it. They presume that they have got to dip this fall. That being the case, what Dr. Dean has said is good news to us, I assure you. I never have heard any objection on the part of officials in any of the states as to the federal inspection. The objections are on the part of the cattlemen themselves, who put up a generous howl because they prefer to be let alone; they want to let things drift along in an easy way, trusting that, by some chance some other influence will come in, of which we have control, and eradicate the disease. They would rather drift along than to be bothered with it. As for officials raising any objections, I never heard any that I considered at all reasonable or worthy of repeating.

PRESIDENT NORTON: Any further discussion of this kind? Right in this line there is a paper to be given on "Lime and Sulphur Dip as an Effective Cure for Scabies," by Dr. W. A. Thomas, state veterinarian of Nebraska; and I think that we will call for that paper at this time, and possibly that will bring up more discussion on this subject.

DR. THOMAS said, before reading his paper: Mr. President and gentlemen, if you will pardon me, I would like to preface my remarks on sulphur dip by giving you a few extremely interesting figures. In the year 1892, ending March 1st, there were lost in the State of Nebraska 10,000 sheep, 18,000 horses, 84,000 cattle, and nearly 200,000 head of hogs. These reports are collected by our Labor Bureau, without division as to the cause of death. The following year there were lost 17,000 sheep, 16,000 head of horses (horses and mules are both considered under the same head), 93,000 head of cattle and 211,000 head of hogs. During this last year, ending March 1st, not nearly as many cattle died, only 67,000 cattle. Of this number 20,558 head died of what is called cornstalk disease. This division was made, at my suggestion, by the Bureau so we could know what the loss had been from that disease. I can only give you one figure of comparative value of loss. In the year 1903, the number of cattle that died was 93,000, which is a little over 4½ per cent of the live cattle in existence in the state the first of July of that year.

Dr. Thomas then proceeded with the reading of his paper.

PRESIDENT NORTON: The paper of Dr. Thomas on the various
dips is in order for discussion. I would like to ask Dr. Knowles what dip they use in his state, which has done such good work.

DR. KNOWLES: Lime and sulphur is the dip par excellence, we think. We do not make it in exactly the proportion that Dr. Thomas recommends. We make it one in three. I was interested in his remark in regard to proprietary dips and would like to give you my experience with such. I mean by that the coal-tar product dips. Last year I got myself into serious trouble by not insisting upon lime and sulphur. We permitted the dipping of cattle either in tobacco and sulphur or lime and sulphur, the same method that we permitted in the dipping of scabie sheep. In the eastern part of Valley county they formed an association to dip all the cattle in that county, including a reservation which is about 80 miles across and 40 miles north and south. That would include a territory of about 125 miles, a strip between the reservation line and the North Dakota line. While I was attending the meeting of these cattle men an agent of a dip, called the “Latin” dip, called on the president, secretary and executive committee of that association and wanted them to use his dip. He assured them that it complied with the government regulation, that is, that it contained so much nicotine, and I think he said about eleven per cent of sulphur. They were very insistent and wanted to use the dip, and I said, “A reputable firm would not be making such statements unless they were true. If the dip does comply with the government regulations and with our state regulations there would be no objection to your using it.” The agent made an affidavit to that effect and I then permitted them to use the dip. They dipped about 30,000 cattle, and the results were very disastrous. The cattle were dipped twice. The disease was not cured, and I believe (as Dr. Thomas said relative to some of the other dips), it was really disseminated by the means of this dip, because scabies is more prevalent in that locality this year than it ever had been before. In addition to that, on the reservation, where the same dip was used, out of 600 cattle they killed 209, evidently with acid poison. I have had a number of analyses made of the various acid dips, and find that the percentage of acid in them varies materially, and on talking to the manufacturers of these dips, I ascertained that they do not know exactly the percentage of acid, in fact it is never constant; it may be 15 per cent or 25 per cent, or it may be 3 per cent. The reservation people got hold of some packages of dip that had a very high percentage of acid, and it was a very disastrous enter-
prise. Those gentlemen in Valley county rather blamed me for using this patent dip; they wanted to get out of using lime and sulphur on account of the trouble of preparing it. If I had been more persistent, and had taken the position that I should have taken, the thing never would have occurred. So, really, I am not to blame, for I did not recommend the proprietary dip, and never have done so.

DR. THOMAS: I would recommend that each individual make his own lime and sulphur dip in every instance; make it with a steamer, by the use of a steam which will not boil over or burn. You can secure steamers that are very reasonable. The lime can be slacked, as you all know, the sulphur added, put into a vat, and the steam turned into it; you can build a fire and go off and leave your steamer at any time and there will be no harm. If you have a caldron or one of those pan-vats, you have simply got to watch it and stir it continually. The same steamer will heat the liquid in the vat by dropping your rod or pike down into the vat and heating it in the same manner. I have seen most excellent results and have been surprised how easily those little steamers, not only cook the dip, but also heat it in the vat.

DR. KNOWLES: I would like to ask the gentlemen if he means by a "steamer" what is commonly called caloric transformer.

DR. THOMAS: I don't know anything about the "caloric transformer". The steamer I refer to has a little barrel that stands five feet high; it has a water-jacket around it, a smoke-stack, and the fire goes right straight through it. There is another one that has a little horizontal box and this barrel on top. It is made by a company at Waterloo, Iowa. The large size is most excellent. You can get them for about $25. I would get as large a portable steamer as I could for that work.

I might state one word further, if you will permit me, in regard to manufactured dip shipped out into the state. You can only get 100 pounds of sulphur in a barrel, and 50 barrels of sulphur shipped half way across the state of Nebraska would cost in freight $3. You can buy the sulphur right there for $3 a hundred. So what is the use? A man has got to haul it from there into the country. He can get material enough there for a little over $3. If he bought the prepared lime and sulphur it would cost $15, and then he doesn't know what is in it. If he makes it himself he does.

DR. KNOWLES: In boiling our dip we universally use what is called a caloric transformer, and use steam in boiling the dip as well
as in heating the vat. The weather is slightly cold in our country and we have considerable difficulty in keeping large bodies of water hot by the ordinary method. The caloric transformer is a very simple thing, uses every particle of the steam without waste or jar. An inch and a half caloric transformer will bring five hundred gallons of water to a boiling point in thirty minutes, and it is a great saving in fuel, labor and everything else. In a 90-foot vat we have about three of those inch-and-a-half caloric transformers, with about ten pounds of steam, and not all turned on; about a quarter turned on will keep the vat, in comparatively cold weather, at an even temperature of 110 all day long.

A MEMBER: Where do you get those?

DR. KNOWLES: You can get them at any first-class hardware store. They cost from five to six or seven dollars each, but it will more than save its costs in a day’s dipping.

DR. LUCKY: I understood Dr. Thomas to say that lime and sulphur is the only dip, and I understand Dr. Knowles to say that he considers it the most superior dip. I understood someone at the veterinary meeting the other day to say that cattle were cured of mange by one hand-dressing with Beaumont crude oil or extra dynamo oil, and I want to know if I am correct about that.

A MEMBER: You are.

DR. LUCKY: I ask for this reason, that in this state where scabies occur among cattle it is usually among small bunches where it would not pay them to prepare a dipping vat, and they must rely upon hand-dressing. If one application of the oil will cure mange, it seems to me it would be more practicable to use that, than to advise the use of the lime and sulphur dip.

DR. KNOWLES: I have had very little or no experience with Beaumont oil, but we have a representative of the Bureau of Animal Industry who has had some experience with it. With the paraffine oil, the extra dynamo oil, and sulphur, I will state that my experience has been most satisfactorily with hand-dressing. I treated, in two instances, 1200 bulls at one time, before we were prepared to dip with extra dynamo oil and sulphur. It would take up about two per cent of the sulphur. That one dressing effectually cured them.

A MEMBER: Do you heat the oil and sulphur?

DR. KNOWLES: No; mix it together and put it on cold. I would like to hear from Dr. Klein on Beaumont oil.
DR. KLEIN: Mr. President and Gentlemen: Last November, at Fort Worth, there were three cars of bulls and steers affected with mange, which were dressed by hand with a certain grade of Beaumont crude petroleum. These animals were kept under observation for thirty days after the hand-dressing. They were seen the first time about 15 days after the treatment, and then showed considerable improvement. The oil had apparently soaked into the scab and made a pulp of it, so that in rubbing with your finger over the affected spot you could wipe the scab off. When seen again, about 30 days after the time of hand-dressing, there was still further improvement. The hair had grown out over some of the affected areas, and in growing had lifted the scab and left an uncovered, perfectly healthy skin. These bulls and steers were dressed with three barrels (about 150 gallons) of oil. It took a day and a half to apply the oil. In addition to this, Beaumont oil has also been used in the same manner under the supervision of another inspector, Dr. Charles Pierson of Anerillo. He used it on 67 animals that he found in the vicinity of railroad stations, where they could be kept under observation, and used it on some very bad cases, and he reported the same result—that it cured the disease. I think it is a very good remedy for the trouble.

A MEMBER: Did you ever use sulphur?

DR. KLEIN: No, just use oil coming from the well. I might say that Beaumont oil contains sulphur; in some cases it runs five per cent. But in this case we were using an oil which was tested according to the oil refiner's test. The gravity test was 22½ to 24½ degrees on the scale, 1¾ to 1½ per cent, and the boiling point of 40 per cent crude was 300 degrees. That was the character of oil we used. These were range cattle. About 58 of them were bulls. The bulls with mange were handled by putting a rope around their horns and drawing them up taut beside a pen. With some of the bulls we took a burlap sack and dipped it in the oil, and some of them you could wipe off; some other bulls you had to mop off. Dip the mop in the bucket and then rub it, not only over the parts which showed the disease, but over the whole body, from the horns to the floor.

A MEMBER: What is the relative of the two dips?

DR. KLINE: The cost of Beaumont oil depends entirely upon the quantity in which it is bought. If you asked for two or three barrels you would probably have to pay six cents a gallon for it.

A MEMBER: At Beaumont?
DR. KLINE: Yes, free on board at Beaumont or some of the oil wells. But if you have it in tank car lots (and the smallest tank car you can get is about 7,600 gallons) it will cost you two cents a gallon on board at the oil fields.

DR. LAMB: If any section of the country has experimented with these different proprietary dips I think it must be Colorado. Colorado has proven to be a very fertile field for the inroads of agents of different proprietary dips, and I guess they have all been tried in the last few years. But people are very rapidly coming to the conclusion that lime and sulphur is the only dip to be depended upon, and probably 75 or 80 per cent of the cattle dipped at present are dipped in lime and sulphur. Almost everybody that has any considerable number of cattle to dip have a plant for the preparation of lime and sulphur on their own range, and very much prefer to use the dip as it is prepared by themselves on their own place, and they are having very much better satisfaction with its use than with any other dip.

DR. KNOWLES: I would like to say, Mr. Chairman, that for hand-application of oil I think the spray machine answered the purpose better than any other method I know of. I have tried all the methods mentioned by Dr. Klein, even brushing it in, putting the oil in a sprinkling-can, with a large opening in the sprinkling portion, sprinkling it over, and having a man with a brush rub it in; but lately I have been using one of these spray or compressed air pumps that are used for white-washing and disinfecting. It throws a beautiful spray, and by having a double feed, you can treat 400 or 500 horses, or 600 or 700 cattle in a day.

DR. THOMAS: I would like to ask the doctor if he has used the oil on horses.

DR. KNOWLES: Yes, sir, I have.

DR. THOMAS: What would you say as to using it in cold weather?

DR. KNOWLES: I do not think it is policy to use it in cold weather or in extremely hot weather—that has been my experience with it—on either cattle or horses, although I dipped the bulls in December, when the weather was very cold, and out of 200 I only lost four. They were weak bulls. But they chill and stand around as long as the oil stays on them.

DR. GLOVER: As state veterinarian of Wyoming, Dr. Seabury is just starting out with an ingenious thing. He intends to haul his spraying apparatus around with a traction engine. He runs the animals
through on a moving platform, and the spray hits them from every
direction. He heats it with his engine and gives the force to the
spray by the engine. He is now making one of those in Denver. Re-
ally, it looks all right. I cannot see any objection to it. In many
respects it is preferable to the dip.

PRESIDENT NORTON: I want to endorse Dr. Lamb's remarks
about dipping for lice. It certainly is beneficial where there are
no scabies in sight at all. Hand treatment is favored in scabies be-
cause the scabies mite propagates and lives almost entirely on the
upper surface of the animal, but in treating for lice I find you are not
apt to treat successfully unless you dip, because the favorite place for
the lice is on the lower side of the animal.

After the announcement of the appointment of committees, the
convention adjourned until following morning at 9 o'clock.

Wednesday, August 24, 1904, the convention was called to order
at 9:20 a.m.

PRESIDENT NORTON: It has been requested, as we closed the
session last evening with a little discussion on dipping cattle with
crude oil, that we call for a paper, the first thing, this morning by Dr.
L. A. Klein, of the Bureau of Animal Industry, on "Dipping Cattle
for Ticks." If there's no objection we will call for that paper now,
and then take up the papers of Dr. Tiffany and Dr. Adams.

Dr. Klein then read his paper.

THE USE OF CRUDE PETROLEUM AS A CATTLE-DIP
TO DESTROY TICKS.

Texas crude petroleum, or Beaumont oil, as it is commonly called,
has been used in Texas for the last eleven months under the supervi-
sion of the Bureau of Animal Industry as a dip for Southern cattle
to free them from ticks, and thus render them non-infectious to other
cattle. Altogether 3,972 head of tick-infested cattle have been sub-
jected to the process and shipped to points above the quarantine line
with satisfactory results.

Almost from the time of the discovery of crude oil in Texas in
1901, it has been used by cattlemen as a dip or applied by hand for
the destruction of ticks, with varying results. Some times the ticks
were destroyed without injury to the cattle; at other times the cattle
suffered quite as much as the ticks. This difference in results is ex-
plained by the fact that the ordinary Beaumont oil of commerce is
very variable in its composition. The crude petroleum which is sold
under the name of Beaumont oil is derived from four different locali-
ties or fields in south-east Texas, near Beaumont, viz: Spindletop, Sour Lake, Saratoga and Batson; and while the oils produced in these different fields have the same general composition, all having asphalt as a base and containing naphtha, kerosene and other illuminating oils, heavy and light lubricating oils, and sulphur, these substances are not present in the same relative proportion in each oil. For example, Batson oil contains about twice as much naphtha and kerosene as Spindletop oil. Horses and mules worked in the Batson field often show the irritant effects of the oil on the skin of the fetlock, which is cracked and swollen, while this condition is not seen in the Spindletop field. Pipe lines transport the oil from the various fields of production to convenient shipping points or refineries, where it is stored in tanks, without regard to its origin, until it is sold in the crude state, or refined. It thus happens that the ordinary commercial Beaumont oil is a mixture of the oils from the different fields in variable proportions, which accounts for the difference in results obtained when it is used indiscriminately.

In the dippings conducted under the supervision of the Bureau only a certain grade of Beaumont oil has been used. This is an oil which conforms to the following specifications: "Gravity 22° to 24° degrees Baume, sulphur 1% to 2% per cent, 40% crude, to boil at 200 to 300 degrees Centigrade." These specifications control the quantity of kerosene and naphtha, the irritating constituents; the percentage of volatile oils, the weight or thickness of the oil, and the quantity of sulphur, insure the use of an article which is constant in its composition. The oil is of a dark-brown color, opaque, and has an odor of hydrogen sulphide. It is not inflammable at ordinary temperatures, but will burn when heated. It is of a very light specific gravity and will float on water.

The first use of this oil by the Bureau on a large scale was near Quanah, Texas, in October and November, 1903. These dippings were experimental and were a continuation of the experiments with the same oil begun at the Bureau experiment station near Washington about two years previous. In these dippings, as in all others, the oil was used in its natural state, without the addition of water or any other substance. Four lots of cattle, consisting of 68 cows, were dipped during October, on the 8th, 13th, 14th, and 16th, respectively, in a vat just outside the limits of Quanah, being driven there from ranches 12 to 14 miles away. The cattle in the second, third and fourth lots were out of a pasture and were part of a herd in which
deaths were occurring daily from Splenetic fever. Several of them were convalescing from the disease and one was affected at the time of dipping. All were thin in flesh. After coming out of the vat the cattle were turned into an adjoining pasture, where they were kept under observation. No live ticks could be found on any of them 4½ days after the dipping, and in the case of the third and fourth lots no live ticks could be found on the third day. It being observed that the adult female ticks, one-third to fully matured, survived the dipping longest, a number of them were removed from the cattle immediately after they emerged from the vat and kept under conditions favorable to life, but they all died without producing eggs—all of them before the 7th day except one, which lived 11 days. The cow that was sick with splenetic fever at the time of dipping died on the fourth day following. On the other cattle the oil had no injurious effect, and did not derange the appetite for food or water except in the case of one calf, which did not eat for a few days and was somewhat dull. The scurf of the skin—i.e., the superficial cells of the epidermis—was loosened by the oil and scaled off, showing on the hair in three or four days like flakes of bran, but except in one animal, which showed a slight tenderness of the skin of the neck and back for 3 days, the skin was not injured. During the first four or five days after dipping, if the temperature in the sun was over 90 degrees F., the respirations were increased in some animals when the cattle were excited or made to move about rapidly, but the breathing soon became normal when they were allowed to remain quiet. Although kept under observation for sixty days no injurious effects developed and no ticks were discovered.

To test the effects of the oil as a protective against re-infection, eight of the cattle were returned to an infected pasture 3 to 6 days after dipping. Two of them, which were put back in the pasture on the third day, were examined on the 21st day after their return and no ticks could be found, although two other animals out of the same pasture, which had not been dipped, carried ticks of all ages. The other six cattle were not available for examination at this time, so that no report can be made on their condition.

All the cattle on a small ranch near Quanah, consisting of 211 cows, calves and bulls, were dipped on November 4th to free them from ticks, and in the hope of destroying the infection on the ranch. The cattle were dipped in a vat located in one of the pastures. They were turned back on the grass immediately after dipping and at once
resumed grazing. On the 4th day after dipping no live ticks could be found, and seven adult female ticks, which were removed from the cattle as they came from the vat and kept in a bottle, died before the 7th day without producing eggs. The two mornings following the dipping were very chilly and foggy and the cattle appeared somewhat "drawn," but this condition disappeared after a few hours of sunshine. The cattle were kept under observation for over 30 days but no injurious effects were manifested and no ticks were discovered. A letter received from the owner in the latter part of May stated that the cattle had come out of the winter in good condition and that no ticks had appeared up to that time.

Since May 16th a dipping vat has been in operation at the Fort Worth Stock Yards under the supervision of the Bureau of Animal Industry, dipping Southern cattle for shipment across the quarantine line. From that date until August 13th, 3,693 cattle were dipped. Until June 4th the cattle were subjected to one dipping, but although three lots of cattle were free from live ticks on the 5th day, live ticks were found on others as late as the 7th and 8th days, and adult female ticks removed from the dipped cattle and kept under favorable conditions produced eggs, some of which hatched young ticks. In order to insure a more rapid and certain destruction of the ticks a second dipping was resorted to and nearly all the cattle dipped at Fort Worth since June 4th, 3,310 head, have received two dippings. At first, the second dipping was made on the third day following the first dipping, but it was found that better results could be obtained by making the second dipping on the fourth day. In all cases in which this plan has been followed no live ticks have been found on the 6th day.

Out of the 3,693 cattle dipped, 17 died. Of these 8 died from splenetic fever, 8 from traumatic pneumonia caused by oil passing into the lungs, and one from accidental causes. The deaths from splenetic fever occurred on the 2d, 3d, and 4th days after the first dipping, which would indicate that the disease had begun to develop before the animals were dipped. All but three of the 17 died before the second dipping. These 3 died on the first day after the second dipping—two from splenetic fever and one from traumatic pneumonia. Fifteen out of the 17 were from one herd, which were unusually wild and hard to handle—conditions which had considerable to do with the results. The cases of traumatic pneumonia, all of which occurred in this herd, were caused by the cattle entering the vat too rapidly and jumping on top of one another. After this herd was dipped a
drop gate was put in the end of the chute next to the vat. This gate can be quickly raised and lowered and completely controls the passage of the cattle into the vat.

Two small yearlings of the dogie type suffered considerable inflammation of the skin on the sides of the neck and chest. The soreness caused by this condition interfered with the taking of food and they became so weak and emaciated that it was considered advisable to destroy them. Both of these animals were of a weak constitution and stunted growth, probably on account of in-breeding and poor nourishment, and they were also in a low state of health, which no doubt explains the severe action of the oil on their skin, especially since cattle in a thrifty condition dipped at the same time and in the same vat of oil did not suffer in a similar manner.

None of the other cattle dipped at Fort Worth suffered any permanent injury. A few appeared dull and did not eat for a day or two, several walked stiff and sore for three or four days, a half dozen or so showed a tenderness of the skin, five or six had swelling of the legs and there was the same flaking off of the scurf as was observed at Quanah, but other than this there was nothing unusual developed.

After being dipped at Fort Worth the cattle are yarded in covered pens. This is done not only to protect them from the heat of the sun but also to prevent a too rapid evaporation of the oil. During May several lots of cattle were kept out in the sun for 4 or 5 hours each day and it was found that ticks lived on them one to two days longer. The exposure to the heat of the sun also increased the respiration of the cattle to a considerable extent, and they appeared to suffer some from the heat, but it is not believed they would be affected to the same extent in an open pasture. Under the sheds the dipped cattle were very comfortable, even in the hottest weather this summer, although when they were taken out and put through the chute for examination their respirations were increased. It is necessary to handle the cattle slowly and quietly after they are dipped, and it is also advisable to supply them with some protection from the sun in summer.

A comparison of the results at the two places will show that the oil acted with more rapidity at Quanah than at Fort Worth. The difference in the conditions would seem to account for this. At Quanah the dipping was done in the fall when the cattle were carrying a thick coat of hair; when the vitality of the tick, as in common with other things in nature, was at a low ebb; and when the oil, on account
of the lower temperature, was thicker and did not run as freely nor evaporate as rapidly, thus giving the ticks a thicker and more permanent coating. At Fort Worth the cattle were dipped in the heat of summer when their hair was thin, when the vitality of the tick was at its height, and when the oil, on account of the high temperature, was thin, ran off freely and evaporated rapidly. Cattle dipped at Fort Worth carried as little oil 3 days after dipping as did the cattle at Quanah a week after dipping. While the results will no doubt always be as satisfactory as they have been at Fort Worth this summer they will very probably be better, especially in point of rapidity, at other seasons of the year.

The only objection which has been made to the process has been with regard to the length of time the cattle are held after dipping. When it is known, however, that the total cost of the dipping and the feeding and caring for the cattle while they are detained has averaged only 74% cents per head for the cattle dipped at Fort Worth this objection loses considerable of its force.

PRESIDENT NORTON: I recognize Dr. Fisher, from Ohio, who has just entered the room.

This paper is now open for discussion. I think it would be well to hear a word of endorsement from Mr. Hankins of Texas. He lives at Quanah and we will see whether he verifies all these statements. Of course, being from Texas, we expect him to.

JUDGE HANKINS: I was present at the dipping at Quanah, and have been at Fort Worth a few times, and have seen many cattle dipped, and I can only say that Dr. Klein's report is very full and correct. We believe we can dip those cattle at any time when they are ticky, clean the pasture, and take them across the line without danger to our neighbors.

DR. THOMAS: I would like to ask the Doctor what he thinks about using the oil with a certain amount of water, that is, as an emulsion, and what proportion he thinks could be effectively used on mange. That would, of course, reduce the price of dipping to a certain extent.

DR. KLEIN: I will say in answer, that this, being a mineral oil, will not form an emulsion. In regard to the using of a layer of oil on top of the water, it would operate with satisfactory results if the oil could always be kept on top of the water; but the trouble is that each animal, as it goes into the vat, will stir up the oil and the water, and the water will come in contact with some parts of the
skin and the oil with other parts. This oil can be mixed with water, but it will separate very rapidly. If a vat were used in the form of a cage (as they do in some districts where they dip very few cattle), the cage being lowered into the vat, it might be practicable to use a layer of oil on top of the water; but for an ordinary vat, into which the cattle are compelled to jump and swim through, I do not think it would be advisable to use a layer of oil on top of the water, that is, for the ticks. In regard to vats, we have had a little experience at Fort Worth which might be of value to some of the members of this association. Our vat at Fort Worth has an incline for getting the cattle into it. It is built at an angle of 22 degrees to within about three feet of the bottom. From that point it is built at an angle of 45 degrees. This incline is covered with sheet-iron, and when we start to dip a lot of cattle we throw some oil on top of the sheet iron. That incline operates more satisfactorily than a tilting-board, from the fact that most of the cattle slide into the oil and under the surface; whereas, with the tilting board, they are thrown on top of the oil, which is splashed out around them, and it is necessary to push every one of them under. Of course there are some few cattle that will jump into this vat and into the oil; some of them will jump clear of the incline, but most of them will slide in, and it works very satisfactorily. Then the drop-gate, that I spoke of, at the end of the chute, is a very good thing. It is hung on a pulley, with a weight, so that it can be pushed up or lowered with very little force, and can be moved very quickly. If you have a lot of cattle in the chute and they get to coming into the vat too fast, you can close the gate in a second and stop them. Our losses from traumatic pneumonia occurred from the fact that the cattle came in too fast. Since adopting the use of the gate we have not had any cases of traumatic pneumonia. I think that would be a good addition to almost any dipping-vat.

DR. KNOWLES: I would like to ask Dr. Klein if he has used spraying with oil, or if he knows anything about it.

Dr. KLEIN: As I stated yesterday, we applied this oil to a consignment of bulls that were afflicted with scabies. I undertook to spray those bulls, but had no chute to put them in, and it was not practicable. They would move about faster than we could move the spray. We had a fruit-spray, which had a very long nozzle, and was rather unwieldy. That is the only occasion on which I tried to spray cattle with this oil. But I think spraying is objectionable for ticks from the fact that a great many ticks adhere to the inner surface of
the flank, a part which would be hard to reach with a spray.

PRESIDENT NORTON: If there is no further discussion on this paper, the next will be a paper by Dr. F. T. Eisenman, state veterinarian of Kentucky.

The Inspection of Cattle for Breeding and Dairy Purposes, Handled by the Express Companies and other Carriers, and its Effect in Preventing the Spread of Contagious Diseases.

In entering upon the discussion of this subject I may note that the want of proper inspection along the lines named has often led to the spread of disease. The carrying facilities which we have in these modern times may be productive of serious possibilities of harm which were unknown under the old arrangements. Our business in this matter is to magnify the good and minimize the bad, and the community at large, whether it knows the details or not, is profoundly concerned in our work. The desire is to keep down those ills of the health of the domesticated animals on our farms which would interfere with the common welfare. The fight that is thus being waged and must be made is one that the few will not longer have to make on behalf of the many without the appreciation of that many. Even the masses are fast coming to an understanding of the intimate relation of the spread of dangerous contagious diseases between man and the animals which he has taken under his care, and, as a result of this, government action is being taken as never before. But for the fact that narrow individual interests come up and place temporary barriers in the way, the end desired would be reached much sooner than it is likely to under the existing circumstances. We must toil on however in the full confidence that as the world progresses so will the present cause. The federal government has for some time been guarding interstate traffic.

As far back as 1884 it took action in relation thereto, doing much as the result of pressure brought to bear on representatives in Congress by their constituents throughout the country. Congress then ordered that no animal with a contagious disease should be carried from one state to another. Since then education covering importations from one state to another was necessary to secure proper action from the railroads and other carrying agents, as well as the owners of stock. So comprehensive is the railroad mind that most of those having control of live stock traffic are cooperating fully with the Department of Agriculture in the matter. When the restrictions are not
complied with it is usually through the fault of some one occupying
a minor office and not doing the right thing by his trust; some one
who is perhaps incapable of realizing the harm which may result to
a state by conveying to it a diseased animal. Again there is a care-
lessness or want of timely action; cars needing disinfection are allow-
ed to go into service again without the necessary treatment to de-
stroy any diseased germs which may exist, and the ultimate destruc-
tion of disease. Such neglect is often due to a lack of education
along this line. I need not say that this education is yet a long way
from being completed. Many a man does wrong through ignorance
and it is also a fact that diseased animals are knowingly slipped in
among a shipment of stock and not discovered until more or less
damage has been done. Let a start be given in a state to pleura
pneumonia and the cattle industry of that state is likely to be seri-
ously injured for years. Such an event as this actually occurred in Ken-
tucky some time ago.

The Department of Agriculture at Washington is alive to the
significance of all this, yet it cannot prevent a state from being a
breeding place of one or more of the scourges of the character under
consideration, and until a change for the better is wrought in this
respect, the borders of states will be passed by diseased live stock.

There is an urgent call for the spread of information so that all
classes will be reached and influenced. We are but entering upon a
campaign of education along this line, a plan in which the railroad
and express companies are to take a leading hand and must have as
a regular part of their force the skilled assistance of a professional
veterinarian. In this way only can there be any assurance that a
dangerous contagious disease is not given the widest sort of distribu-
tion. There is not a citizen worthy of his place who is not deeply
concerned in this matter. When a vast number of animals which
supply food are suddenly wiped off the face of the earth, who suf-
fers? The stock interests of the country have much to do with the
right sort of start for a vigorous manhood and good meat—meat free
from diseased germs—plays no small part in keeping that manhood
up to its very best. In view of these things, is it not strange that there
should be found a person capable of giving protection to beginnings
which may prove pestilential. Those who do the like knowingly should
in my opinion be visited with no ordinary severity and it is the duty
of all conscientious persons too educate the people in regard to the
duty they owe themselves and the people. We need the help of both
the educator and legislator along these lines.

At the conclusion of the reading of his paper Dr. Elsenman
said:

Mr. President, I think it was Dr. Knowles who, yesterday, brought
out the information regarding the desirability of railroad companies
not handling diseased stock. Now, in our country the railroads have,
been very willing to co-operate and assist in the work. A good many
years ago they ignored all authorities, until some mishaps caused them
to lose a little money; and when they saw it was necessary to work
in co-operation with the authorities, they were not slow to do so: in
time we expect to get along very nicely. Closer relationship with the
railroads has assisted me in private practice, my services being in
demand in case of wrecks. I remember two or three large wrecks, in-
volving the loss of a great many dollars. A special engine carried
me to the wreck. The injured stock were killed, that which passed
inspection was put in a car, and shipped to town and sold at a small
discount on the regular price. In that way the railroads begin to
appreciate the assistance of a trained veterinarian. If the live stock
agent goes out (and he is always on the scene) unaccompanied by a
veterinarian, he is at a loss to know what to do. So, you can readily
understand that they are anxious to have one on the scene who has
the authority and the proper training to put them in a position to
save money. I believe it is only a question of time until the railroad
people of Montana and other states will follow out the same plan.

PRESIDENT NORTON: If there is no further argument on this
subject we will call for Dr. Tiffany's paper, "Haemorrhagic Septicae-
mia, Its Cause and Best Means of Prevention."

DR. TIFFANY: Mr. Chairman and Gentlemen of the Association:
I have no paper prepared. About ten days ago our worthy secretary
asked me to prepare a paper on something. I told him I didn't have
time, didn't know what to talk about if I had, and he suggested "Haem-
orrhagic Septicaemia", I presume because, in the last two years, we
have had several outbreaks of it; but he has also, I see, added to the
title, "Its Cause and Best Means of Prevention." Well, I don't know
of any means of prevention, I haven't any idea of any, unless it should
be discovered, some day in the future, that immunization by vaccina-
tion is effective. I understand, though, that there are some states in
the West that have not as yet had any haemorrhagic septicaemia, or
discovered it as such. I pre-sume we have had it in Illinois before
the last two years, in fact I remember a case now, probably ten years
ago, in which I could make no diagnosis as to any specific disease,
but simply called it acute septicaemia. I had never heard of haem-
orhagia septicaemia at that time. If the association cares, I would
like to relate an incident in two outbreaks. It may bring out some
information on the subject by those who have had more experience
than we have had in our state. A year ago this month, I was called
into the southern part of Illinois to investigate a disease among cat-
tle. I there saw a lame cow, and a lame calf about eight months old.
I was told that about two or three weeks prior the owner had lost
two cows in a very mysterious manner. The history was this: One
morning the cow was discovered "breathing in a peculiar manner," as
this man described it; he was not able to give a very good defi-
nition of "peculiar manner," but I judged there was difficult respiration,
perhaps induced by swelling about the throat. He said she was
dead in thirty minutes. They thought her hide was worth saving,
and a neighbor, who had had some experience in butchering, came and
assisted him. They removed the hide and found, as he described,
about the throat a yellowish substance. They held no post mortem,
and discovered nothing otherwise than what I have mentioned. That
night, a cow, which was milked in the morning, was discovered in
the same condition, and in a very few minutes was dead. They re-
moved the skin but did not discover anything abnormal. Thereupon
all the stock was removed from the pasture, and were gone about
ten or twelve days. I should also state, in addition, that when he
discovered this lame cow, she was sick and refused to eat. The calf
was found in the same condition. They feared they were going to
lose some more cattle and telegraphed for help, and I went down. I
took the temperature of this cow and found it to be a little above
104¼; the temperature of the calf was about the same. I undertook
to examine the cow for lameness, and she—like most cows—resented
it, but we succeeded in getting the calf up to the barn, and tied it
up. This was lame in the left fore-leg. A thorough examination re-
vealed no cause whatever for the lameness and no signs of black leg,
or any trouble of that sort. We went out again to the cow and found
her lying down, and I noticed that between the claws it was inflamed.
I felt of it, and she resented it. The man said that was caused by
getting a rope fast there two or three days before. I thought that
might be cause for the lameness, but it would not account for her
other condition. The calf also had been mixed up with a two-year-
old bull, but that would not account for its high temperature. I told the owner that there was probably something more serious than appeared on the surface, that I would not leave town until the next day at 9 o’clock, and if anything happened during the night to let me know. Nothing was heard from the owner, and I took the train, and was about 75 miles away, when I got a telegram that both animals were dead, and to use my judgment about returning. I telegraphed I would be back on the next train. When I arrived they had the skin partially removed from the cow. I was at once struck with the peculiar condition of the subcutaneous tissue. In the region of the withers and neck the extravasation, or effusion rather, was serious, and along the ribs and back there were haemorrhagic patches from the size of a bean to a dollar, that could be picked out with the fingers. We then opened up the carcass. The extravasation in the lungs was intense, but had the appearance of recent origin. I think every portion of the lung, except the posterior lobe of the left lung, was involved. The diaphragm was involved. When we came to the small intestines, the patches of enteritis were peculiar. There would be a portion a foot long, perhaps, thoroughly invaded; then a long stretch of apparently healthy intestine. The contents of the bowels showed haemorrhage mixed with them. When we came to the calf we found similar condition of the lungs. The posterior lobe of the left lung was not involved. The same condition of the intestines existed; not quite so many patches of localized haemorrhage along the ribs as in the cow, but I remember the owner said, “This calf has been shot.” You could pick out the little patches, about the size of a buck-shot. I remarked that I did not believe he could find any holes in the hide, and we did not. But, in addition to the lesions found in the cow, the bladder of the calf contained urine very similar in appearance to that found in tick fever. I might add that the spleen in both these cases resembled very much that found in tick fever. Their condition might have been due, perhaps, somewhat to post mortem changes (the weather was fairly warm), but still I think not entirely. Now, the lameness I did not even then discover; I did not think of opening up any of the articulations to discover whether they were involved, but they probably were. On my advice the cattle were removed from this pasture, and no trouble has ever since occurred on the farm, that I know of.

Not long after that (it was in November), the weather had got cold, on a farm near Springfield, several head of cattle died, and a
veterinarian had diagnosed corn stalk disease. They had never been on a corn field; they had been fed shock-corn, but this was taken from them, and they were fed on hay and corn. About seven days after the removal of that sort of feed a steer died, and the veterinarian advised that I be called in for consultation. We went out and held post mortem on the steer; a three-year-old. We found behind the shoulder a very large patch of haemorrhage, the neck and withers diffused with haemorrhage, as it was in the other animals I spoke of. We found enteritis—not so well marked; the extravasation into the lungs being similar to previous cases. I think the posterior lobe of the left lung was not involved here. The spleen was normal. I requested that the cattle be removed from the premises which they occupied; in fact the steers were sold, and went to a farm close by, and remained healthy. In the spring he lost a calf or two and spoke to me about it, and I said they might have black-leg. He said he didn’t think so; but finally one had died during the night, and another was sick, and a veterinarian (who had formerly treated the animals) and I went out. The one that was sick died just as we got there. We held a post mortem on both calves, and found plain lesions of haemorrhagic septicaemia in both. Now, since that time he has lost several more calves that have never been out of the barn. Last week I went over and held post mortem on a calf, only about four weeks old, and while the lesions were not as well marked as they had been in other instances, they were plain enough, so that I could diagnose nothing else. This barn is on very low ground. It is a magnificent structure, cost $10,000. He built it in this place so it would be convenient to drive in at the second story with a load of hay. I advised him to stop putting calves in this portion of his barn. He is arranging to dig around it and drain it, but whether that will have any effect or not I don’t know. Now, if these are cases of haemorrhagic septicaemia, in calves that have never been on pasture, it would indicate that they received their infection in some other manner than from vegetation. These calves have all been fed differently; nothing wrong could be discovered with the feed. Dr. Reynolds, who has made thorough investigation of this disease, is here, and perhaps can enlighten us on the subject. We have had other cases in Illinois; the losses have been severe, but these two are interesting cases, if the first ones had haemorrhage septicaemia, and I believe they had from what followed. I might add this: that one of the men who skinned this first cow either cut his hand or had a sore on his hand, and soon
developed a serious condition of his arm. He went to a physician, and they were very much alarmed for several days, but he finally recovered. I saw the physician and asked him if he discovered anything peculiar about the condition of this arm other than ordinary septicaemia. He said he did, but he was at a loss at the time to understand what it could have been. I don't know that I can say anything more, gentlemen, that will be of interest. (Applause.)

DR. EISENMAN: I would like to ask the doctor what diseases would we be most likely to confound with this disease. He says the spleen resembled Texas fever. For that reason it would be similar to the spleen of anthrax and possibly black-leg. How do you differentiate between the diseases?

DR. TIFFANY: I believe the condition that I mentioned in the first case—of the spleen—was very rare; but, in addition to that, you do not find those infusions or localized haemorrhages in different tissues of the body in any other disease. That alone would distinguish it. In black-leg the tumors are localized and quite large in size, as a rule. And you would not be apt to confound enteritis with it—the extravasation into the lung found in haemorrhage septicaemia. In anthrax you would find extremely high temperature. I might add, that in the earlier stages of the disease haemorrhagic septicaemia, the temperature is probably about normal; some times it rises prior to death, and that was the case with those two animals I spoke of. I had no more idea that that cow and calf would be dead the next morning than I have that any of us will be dead tomorrow morning, but they were both dead, they told me, at half past eight, and I left there about 5; the cow was eating some food at that time and the man thought it was recovering. The calf did not appear to be in a serious condition.

DR. EISENMAN: How about corn-stalk disease?

DR. TIFFANY: There is a problem for us all. I expect a great many cases which have been termed corn-stalk disease, were in reality haemorrhagic septicaemia. I would not be surprised if some of the cases we have had in our own state, and some I have seen myself, without holding a post mortem examination, would reveal haemorrhagic septicaemia. I have seen a great many cases of what is called corn-stalk disease, where I found no lesions that I could even now call those of haemorrhagic septicaemia. But I presume it would be very easy during life to mistake the two diseases. There is one peculiarity I have noticed in haemorrhagic septicaemia. In almost every instance,
that I remember, after death the neck and head were drawn very much as we find in tetanus.

DR. WARD: Mr. President: Dr. Tiffany has described to you the acute cases of haemorrhagic septicaemia. In Minnesota, during last winter, especially during the months of February, March and April, we experienced quite a large outbreak of the chronic form. I presume, during those three months, at least 1500 head of cattle died. These were scattered in quite a number of counties throughout the state. In some cases the outbreaks were far removed from each other. Only in one case that we investigated was the adjoining farm infected. In the chronic form, as we met it last winter, the animal would usually go down, practically paralyzed behind, unable to get up. The appetite would remain good and the animal continue in that condition probably for two weeks before death. On making an autopsy of these cases the haemorrhagic lesions could be found subcutaneously, and in almost every organ of the body. The lining of the paunch could be easily stripped off, and underneath would be seen haemorrhagic spots. In some cases where we made post mortems but one single lesion could be found. Dr. Tiffany states in some cases he has found the animal's head drawn to the side.

DR. TIFFANY: No, drawn back.

DR. WARD: Drawn back. This is what we recognize in Minnesota as the meningeal type of the disease. I might say that Dr. Moore, of Ithaca, states in his work on infections diseases, that he has found a large percentage of cattle to have the germ of haemorrhagic septicaemia in the upper air-passage. Now, owing to the large number of cases that we had last winter, and the intense cold, necessitating the cattle being housed very closely, I presume that is one reason why such a large number of cattle in each herd died. Of course the feed was poor last year, and all cattle were more or less emaciated. As soon as the cattle were turned on pasture this spring, the disease seemed to disappear entirely, and only one outbreak in the acute form was reported. I consider that haemorrhagic septicaemia is a very serious problem in Minnesota and other states. There is no question but what it is reported lots of times as black-leg, and as cornstalk disease, and it would seem that the disease is spreading very gradually.

DR. REYNOLDS (Minnesota): It has been my experience (not very pleasant, perhaps, but very interesting) to have seen considerable of this disease which we call at present, for want of a better name,
haemorrhagic septicaemia. I don't know that I care to go into any lengthy talk on the subject, but I would be very glad to answer any specific questions that any man here may care to ask, if I can, and I am sure that my colleague, Dr. Ward, would be glad to do the same, as we both have seen quite a lot of this trouble. There were one or two points that occurred to me during Dr. Tiffany's talk that I thought might be worthy of mention; for instance, that point of the mysterious death. A man goes to bed at night, his cattle are all well, and the next morning he has a cow dead; or he turns his cattle out to pasture, they were all well at noon when he saw them last, and he brings them in at night and one is dead, and he didn't know that one was sick at all. We have had that sort of experience in Minnesota; but that, of course, is always in the very acute cases, such, in general, as Dr. Tiffany described. Perhaps our most serious and widespread losses have been during the past few years. The cases of the past two years have been, however, of the chronic type, in which the cattle live longer, as Dr. Ward has already told you. We had a very interesting and somewhat unique outbreak of this trouble among cattle at the University Experiment Farm, where I had an unusually favorable opportunity for studying them, and these cases were all of the meningeal type. One evening, about eight cows in a dairy herd gave practically no milk; nothing else out of the way was noticeable. The next morning they gave no milk, and some of them were noticed to be slightly stupid, but nothing else. They would swish the flies, drink, lie down, get up and stretch, they went through a period of about 24 hours of rather stupid condition, nothing unusual to be noticed except that they were dull and sluggish. Then there came on a period, varying from 12 to 24 hours, of intense nervousness, and the closing scene in nearly every case was a very wild one. My diagnosis was not haemorrhagic septicaemia until after we had a chance to make some post mortem examinations, and my diagnosis was confirmed by two other veterinarians who had seen a great deal of haemorrhagic septicaemia, and neither one of us diagnosed haemorrhagic septicaemia. But this was our first experience with this type of the disease. I may say, however, that the post mortem diagnosis of haemorrhagic septicaemia was confirmed by careful work. We lost eleven cows all together: nine taken almost the same evening, and they all died very close together, very suddenly, the best cows in our herd, and we didn't know at the time what it was. Now, the sequel to that has been very interesting. You know it is not uncommon in
outbreaks of infectious diseases for the first few cases to be extremely virulent and acute, and later on they taper off until they get to the chronic type; they don't die, but linger along, and eventually make a tardy recovery. We have had that experience in a very interesting way, on the University Farm, with this haemorrhagic septicaemia, following the original outbreak. There was a time after this when only calves were affected, and they died rather promptly. Later on we had a chronic type among our calves, but they died. Still later on we have been having cases, and do yet quite often. Evidently, they have this disease, but they linger along for quite awhile and make a tardy recovery. Apparently the disease is simply going down and slowly out with us. In a great many of these cases, even among the calves, I may say, the diagnosis has been confirmed by careful laboratory work, and I have no question concerning the accuracy of the diagnosis. The ante mortem diagnosis of this disease is extremely unsatisfactory in many cases. The post mortem diagnosis in most cases is very simple and very satisfactory. There should be no difficulty in differentiating between haemorrhagic septicaemia and blackleg and anthrax and any other disease that I know of, excepting possibly swine-plague, and there comes in an interesting relation, perhaps. Those of you who have been following the bacteriology of this subject are aware that the bacillus bovis septicus has not been differentiated in the laboratory from the swine-plague bacillus. Apparently, so far as any work which has yet been done, they are identical. Now, in Minnesota we do not find any connection between our swine-plague—and, by the way, our swine-plague, I may say, is almost always mixed with hog cholera, but we do not find any connection between our swine-plague outbreaks and our haemorrhagic septicaemia outbreaks, as we might expect. Dr. Ward, I think it was, alluded to the fact that the haemorrhagic septicaemia or the swine-plague bacillus has been found in the upper air-passages, and in a great variety of other places, in apparently healthy animals; and Dr. Dinwiddy remarked to me the other day that it was apparently easy to get a culture of swine-plague bacillus from almost any hog that died with a lesion of the lungs, or something to that effect. Evidently this is a very widespread bacillus. It is almost omnipresent where there are cattle and horses and hogs, and what we need now is to know the difference between the bacillus that is present in the healthy animal and in the one that is deceased. In Minnesota we are not able to trace any connection, as a rule, between one outbreak and another. We
never know where it comes from, and we never know where it goes to. Simply here is a man that has lost so many cattle, and that is the end of it. His neighbor may come over and help skin the cattle and tramp around in the blood and go home, and the chances are nine out of ten that his cattle won't have it. That experience has occurred over and over again. It is a very mysterious thing in that respect. Personally I have quite a strong suspicion—it has not been demonstrated of course—that haemorrhagic septicaemia, corn stalk disease, swamp fever in horses, swine plague, and quite a choice collection of other diseases, are all the same thing.

DR. DINWIDDIE: I want to take issue with the last statement of Dr. Reynolds. I do not think he will find, either by experiment or observation, that there was any clinical or practical connection between swine plague, haemorrhagic septicaemia, chicken cholera, or any other of these diseases, either experimentally or naturally, which are caused by these germs which resemble each other under the microscope. I have frequently tested the swine plague germ, by inoculation and in every other way, with chickens, to demonstrate the difference between chicken cholera and swine plague, and there is none. I have not yet got a culture of Dr. Reynolds' germ to compare it with the swine plague. Now, where I come from, in Arkansas, any hog that dies of any contagious disease will show a lesion of the lungs, and in this case you can demonstrate every time by inoculation of the guinea pig that the swine plague bacillus resembles this one the Doctor describes in that it causes a haemorrhagic congestion of the serous membranes, in the acute form, and in the chronic and subacute form it causes a most intense fibrinous inflammation of the membranes. Hogs that are going to die from the acute form live for a week or so. You will find the membranes covered with a rank and most intense diphtheretic-like membrane. The acute form shows itself in hogs by the apoplectic condition of the bowels, similar to what they find in Minnesota cattle. Some times they will die within ten or twenty-four hours after the first signs of sickness, with this intense, I would not call it an inflammation so much as an apoplectic form of congestion of the bowels, and in all hogs there is present pneumonia, which, after some time, may become purulent; but in the early stages in the acute form it is simply an apoplexy of the lungs. Guinea pigs die from inoculation of the bacillus of haemorrhagic septicaemia as they do from swine plague, but the communication of the disease by inoculation from one animal to another, from cattle to hogs, from hogs
to chickens, you will find, I think, Doctor Reynolds, to be impossible. The bacilli are similar, but they are not at all identical. Pneumonia of hogs is a manifestation of swine plague. You find the swine plague germ every time in the lungs. That is, the chronic form of swine plague in young pigs. I have never been able to find, since I have been making investigations, any chicken cholera. I have tried to convey swine plague to chickens without any result. The swine plague bacillus forms no gas. Hogs that die from it show no enlargement of the spleen. And so I think there is no likelihood of confounding it on this account either with black leg or with, what the gentleman here has just spoke to me about, gaseous oedema.

DR. WALLACE: I have no personal experience with haemorrhagic septicaemia, but it may be of interest to the members of the association to know how it is looked upon by some of the European veterinarians, especially by the French. With them haemorrhagic septicaemia is recognized as being a very wide-spread disease. They recognize that what is commonly known as haemorrhagic septicaemia in cattle, the similar disease in horses, swine plague and chicken cholera, are all caused by a germ belonging to the same family, but not identical, as Dr. Dinwiddie says. The germ from one animal won't cause the disease in another, but so far as laboratory work goes they are practically identical. They have the same cultures, they have the same form morphologically, and give the same reactions in laboratory work. The French name of the disease which they have adopted now is pasteurolosis, out of compliment to Dr. Pasteur. Dr. Lignieres has done considerable work on this problem and his researches and those of Dr. Nocard are embodied in the work on Infectious Diseases by Dr. Nocard and Dr. LeClanne. A translation is being made by Dr. Lieutard, and when it comes out I think you will find it a very interesting book. But their conclusion is simply this: That all these different diseases are caused by bacteria which are morphologically identical and not transferrable from one animal to another, and along the same line in cattle you will find it a very dissimilar form of disease. The acute form which Dr. Tiffany spoke about may be differentiated, I think, from other diseases by the intensity of the infection in the lungs, differing in that respect considerably from anthrax and also from black leg. But in addition to the acute form, they have a chronic form, which Dr. Ward spoke of, and that, after the chronic form, runs quite a long course, and the lesions in that case are con-
fined to the lungs also. The lesions in the lung are of a very chronic character, and are accompanied by considerable calcareous deposit.

DR. THOMAS: The definitions that Dr. Tiffany and Dr. Reynolds have given of haemorrhagic septicaemia, I think, are very good. The description of those cases is certainly very good. In Nebraska we have not diagnosed septicaemia. I will say that I saw some cases last winter which simulated it. The post-mortem lesions given would class it under that head, but I cannot believe that corn stalk disease can be called haemorrhagic septicaemia. As I said yesterday, we lost 20,568 animals last winter on corn stalk disease. I think, and so my colleagues believe, that it is a much less number than were lost, I might say, several years previously. We have, I would say, two forms of corn stalk disease. I call it gastro-enteric vertigo and starvation. In the acute cases we have this gastro-enteric condition. The shorter the period of illness, the more sudden the death, the less lesions you find at post mortem. If an animal has been sick a little longer, and you make your post mortem, you will find the gastric inflammation and the enteric inflammation. Those are what we get in the acute cases. Now, I have seen cattle in this other form that I speak of, where they have been fed on corn stalks and straw, entirely, as feed.

PRESIDENT NORTON: Just as a matter of record I wish to say that in Arizona, last fall, there was an outbreak of swamp fever, or at least the symptoms were identical with those described by Drs. Torrance, Brimhall and Annand, at the Minneapolis convention of the A. V. M. A. two years ago. No connection whatever could be traced to prove that the infection had been brought from the outside; and yet, on close investigation, at least 25 horses and a few mules had died from typical symptoms of swamp fever, so called. One gentleman, Mr. Jordan, was very positive that the hogs had something to do with the death of the horses, because it happened that on the first three or four ranches where horses died with these symptoms, hogs were pastured. But, luckily for me, afterwards the disease broke out some eight or ten miles from there, where there were no hogs at least two or three miles, and no horses had been taken from one place to the other. I simply give this incident to raise the inquiry whether this disease is strictly contagious and infectious and necessarily brought from one district to another, or whether it could originate spontaneously. I will not describe the symptoms, but will say that in this instance most of the horses took the chronic form of the disease and lived from four to eight days in a partially paralyzed con-
dition, especially in the posterior limbs, with some dropsical symp-
toms, but nearly always before dying showed considerable dropsical
swelling along the abdomen and chest and such parts.

Any further discussion on this disease?

DR. REYNOLDS: Just before we drop this, allow me to put my-
self on a better scientific bases with the scientific gentlemen who are
present, as this has taken a more technical and profound aspect than
I had expected. My thought with reference to the relationship of
these various diseases was this: Here we have one bacillus causing
swine-plague, that is pretty well recognized; we have one causing this
haemorrhagic septicaemia of cattle; we have one causing chicken
cholera among chickens; we have one causing Rinderseuche
and buffalo disease, and all these other things. In the laboratory these
germs may be cultivated side by side, with a wide range of media,
and there is no distinction. Now, in our state most of the bacterio-
logical work was done by Dr. Louis B. Wilson of the laboratofy
of the state board of health, and I have seen a series of parallel cultures,
and we could make no distinction. On all of these various media they
grow just alike, they correspond in minute details; under the micro-
scope, with their stain peculiarities, they are stained just the same,
the same shape, the same peculiarities all the way. Each one in its
own animal produces a disease which is extremely similar to the
disease which the other one produces in the other animal. Now, I
do not know that the swine-plague bacillus has ever been transferred
to cattle with the production of haemorrhagic septicaemia, or the
reverse, or that chicken cholera has been transferred to swine or the
reverse. And I should not have said that I believed this was one
disease, but I should have said, perhaps, that they are extremely simi-
lar. The specific causes are extremely similar. The mere fact that
it cannot be transmitted from chicken to swine, or from swine to
chicken, or from swine to bovine, or the reverse, does not necessarily
disprove that these varieties are not the same species. We have the
same difficulty with the tubercle bacillus, and I don't know that anybody
has ever transferred the avian to fish, or the avian to the human, or
the avian to the bovine. The conditions of temperature in the differ-
ent animals are different. The blood sera are different. One has been
accustomed to and grown for generations under certain exact condi-
tions in one animal, and another in another animal, and possibly the
germs cannot make a sudden transfer and survive and produce the
disease. I cannot see that the mere fact that we have failed to
transfer from a pig to a cow or a sheep or some other animal and get good results necessarily disproves the thought.

DR. CAREY: I want to ask if the analysis of the urine in these diseases compared with the analysis of the urine in Texas fever or tick fever.

DR. REYNOLDS: I may say, so far as I know the literature on the subject, that that has not been done in any careful way. Those of you who are interested in this subject can easily get a copy of the original bulletin published by Dr. Wilson and Dr. Brimhall from the State Board of Health, and you can also get a later bulletin, published by myself, from the Experiment Station of Minnesota, on this very subject, by writing to the Experiment Station, St. Anthony Park, Minnesota.

PAPER BY THOMAS MORRIS, MEMBER SANITARY BOARD OF OKLAHOMA.

In speaking of quarantine conditions of Oklahoma, it may be well to first give some description of our geographical location and our location in regard to the natural habitat of the fever tick. It has been stated that it was difficult to determine whether Oklahoma was the extreme Southern limit of the non-infected area or a Northern limit of the naturally infected country.

The conditions for years before the settlement of the Territory were such as to confirm the latter supposition as its vast plains were ranged every year by Southern cattle, and after Kansas had enforced quarantine regulations to the extent that it enjoyed comparative immunity from infection. The Texas cattlemen held full sway from the Red River to the Kansas line.

Much of our country being high rolling prairie, similar to Southern Kansas and Northwest Texas, it was found that by using due diligence, much of this country could be cleared of infection and work was commenced at once to accomplish this end.

Quarantine laws were enacted and Southern cattle were excluded as much as possible.

This work has been going on for several years with the result that we now have thirteen counties and parts of three others above the federal quarantine line.

By legislative action, the Oklahoma Sanitary Commission has certain jurisdiction over this line by enforcing all federal regulations and prosecuting violations of the same.
We also maintain a quarantine line around the whole Territory with the exception of one county, a part of another, Kansas maintains a quarantine line along the whole length of its Southern border, but two-thirds of this line is protected by the non-infected area of Oklahoma.

We have not only our Southern border to watch, but our entire Eastern line which borders on the badly infected Indian Territory.

Giving a line more than five hundred miles long, every foot of which is dangerous ground, and as I have remarked before, at these meetings, Oklahoma is truly the battle ground of the tick, and I believe we have more to contend with than any other state or Territory, as our rich grasses and abundant grain and forage crops are a great temptation to cattlemen, especially in years of drought and short crops in the country South and East of us.

However, the spirit of Oklahoma is to accomplish things; and we are glad to say, we are making progress in this matter. We have had no general out-break of fever, either above or below the federal line for several years, and while there has been some sporadic cases, these have been promptly taken in hand and in no case has the infection been allowed to spread.

During the last summer, infection was found in Woods County, which is above the federal line.

After an investigation by this Board and the B. A. I., the matter was taken in hand by the Territorial and County Authorities, and a strict quarantine placed on all infected pastures, with instructions to officers in charge, to compel all parties to disinfect cattle and pastures.

The work has been carried out in such a manner that all but a few of these pastures have been released.

The smaller amount of infection the present season is accounted for in the fact that greater precaution was exercised during the open inspection season last winter than ever before.

Owing to the limited number of inspectors allowed the Territory by law, the Federal Authorities kindly undertook to supervise the movement across the federal line. This relieved us of a great deal of work and insured closer and more careful inspection and resulted in the passing of fewer cattle than ever before. This is desirable when we consider that practically all the cattle on the border of Oklahoma are infected.
The federal regulations admitting cattle from below the line when properly dipped in crude Beaumont oil, and the establishing of dipping plants at Fort Worth and other points will greatly assist us in keeping out this infection. Two stations have already been established on our border and applications for others have been made, and as soon as enough of these have been installed, we believe that dipping should be made one of the requirements for permitting Southern cattle to cross the line.

Scabies or mange in cattle has made its appearance in portions of the Territory, but so far is wholly confined to Beaver and Northwestern Woodward counties.

Strict regulations have been made, forbidding the movement of cattle from this section, and measures have been taken to eliminate the disease.

We are compelling all affected and exposed herds in Woodward County to be dipped in lime and sulphur dip, and have this work now about completed. The same measures will be enforced in Beaver County the coming season.

No cattle are allowed to come in from the infected states or Territories without proper inspection and certification by inspectors of the B. A. I.

Tuberculosis is very seldom found and very few cases respond to the test.

Malignant catarrh has been found in a few herds, but so far, no serious results have followed. Black-leg is reported frequently, but it seems easily controlled by vaccination.

Glanders among horses still give us a great deal of trouble. This disease has never been epidemic nor is it confined to any particular part of the Territory, but breaks out in isolated cases in all parts. By prompt action on the part of the Board, it seldom spreads to adjoining farms. All animals reacting to the mallein test are destroyed and premises disinfected and quarantined until danger of the disease is passed.

One of the most serious problems that confront us, is the proximity of the Indian reservations to the federal quarantine line. I refer to the Otoe, Missouri, Ponce and Osage reservations.

Three years ago, a quarantine line was thrown around the Ponca reservation by legislative action and to show the efficiency of this quarantine, it will only be necessary to state that the department has lately issued an order for the movement of cattle from this reserva-
tion by federal inspection. The pastures of the Otoe, Missouri and the Osage reservations continue to be occupied by Southern cattle, thus endangering the interests of adjacent stockmen.

The most serious outbreak of fever we have had in the last three years, occurred the present season, caused by a few steers escaping from a herd of infected cattle shipped to the Otoe country for grazing. These steers broke into six pastures all of which were occupied by farmers' bunches of native cattle. The aggregate number of cattle in these pastures was 225. Out of this number, 123 have died and the balance are left in an enfeebled condition.

This is a serious loss to farmers who had most of their savings invested in these cattle. The disease has been confined to these pastures, but we are continually threatened with similar outbreaks as it is a very easy matter for cattle to get across this line either by accident or design.

If the Territory could be given authority to extend quarantine regulations over these reservations, we believe it would be but a short time until native cattle could range therein with immunity from disease.

It has been urged heretofore by the Interior Department that should Southern cattle be excluded from these reservations, it would reduce the rentals and consequent revenue to the Indians.

If it is in the province of this Association, we would recommend that protest against such action by the Department be taken; action which will eventually lead to the exclusion of Southern cattle into the Otoe and Osage reservations. As it seems reasonable to believe that the rentals will be worth much more to the Indians if cattlemen were assured that they could run native cattle in these pastures with reasonable assurance of immunity against fever infection.

On July 28th, of the present year, Mr. W. E. VanMeter of Blackwell, Oklahoma, shipped a bull from Latham, Butler County, Kansas. This bull was shipped, crated in a stock car and died August 10th, just fourteen days after arriving at Blackwell.

Ticks were found on this animal the day he died which were in the nymphal stage of their existence, which under normal conditions extend from about the 7th to the 8th day from the time they became attached to their hosts to the 15th or 16th day, so that these ticks must have been picked up during or about the time of his movement to this place.
The supposition is that this animal was shipped in a car which had carried Southern cattle that had not been disinfected.

The shipment was made over the St. Louis & San Francisco railroad in an A. T. & S. F. car.

With the limited means at our disposal, we believe we are accomplishing fairly satisfactory results and hope that in the near future, all of Oklahoma can be safely placed above the federal quarantine line.

PRESIDENT NORTON: We will now have open discussion for a few minutes; and anyone who has any particular phase of state work to report, that is of interest and importance to this association, or any requests for assistance that this association can give, we will hear them, the speeches not to be more than five minutes.

DR. DINWIDDY: As my state comes about first in the list, it has been said that the State of Arkansas has not been represented at these meetings for I don't know how long. I would like to make just a few statements in regard to quarantine in Arkansas for the prevention of the extension of tick fever. For some years, a row of ten or twelve counties along the north of the state, have been regarded as north of the quarantine line, and we have a state law prohibiting the movement of cattle across this line. The state line would correspond with that established by the Bureau of Animal Industry, and I think it is acceptable to the people in the northern counties of Arkansas. Inspection is required before cattle can be moved, except for slaughter. It would be an advantage, no doubt, in many cases, to have this inspection done away with, but I am not prepared to recommend that at the present time, because, unfortunately, the state is not able to enforce its local quarantine as thoroughly as it ought to be in the light of definite laws; and at the next session of the legislature we expect to formulate and have new laws passed.

DR. LUCKY: I am familiar with the situation in northern Arkansas, having ridden all through that country and examined cattle in every part of every county in Northern Arkansas; and I think it was of great value to the state of Arkansas to have Dr. Dinwiddy present and take an interest in managing the tick fever situation, with a view to getting certain counties in northern Arkansas permanently free from the infection and eventually north of the quarantine line. There has always been a very limited amount of infection in the two northern tiers of counties in Arkansas; at the same time, it has been well distributed over the different parts of the different counties, so that
today it would not be safe to admit cattle from those counties without inspection, and it is possible that it would endanger us to admit cattle as native from those counties on inspection during the entire year.

Formerly the federal regulations provided a very short period for the admission of cattle from Arkansas. Two years ago the regulations were arranged about as I think they should be under present conditions, and cattle were admitted from the entire state of Arkansas from the first of November until the first of February, on inspection, and from the two northern tiers of counties of Arkansas during February and March, giving the cattle men all they cared to have, as I know from personal talks with the cattle dealers, both in Arkansas and South Missouri. The legislature of Arkansas, at the instance of Senator South of Baxter county, passed a law describing the old federal quarantine line at the southern border of the second tier of counties, beginning at the Indian Territory and running eastward, forbidding the movement of cattle from south of that line to points north of it, except during certain winter months—I think they were December, January and February. When they got East to the swamps, where Black river practically separates the swamps from the hill country, they took North and Black river and offered protection to none of the swamp counties. Here they made a mistake, Dr. Dinwiddy. The fact is that the swamp counties are freer from tick fever than the mountainous counties; and I have found that southern cattle driven or shipped into Harrisburg caused a serious outbreak among the cattle there, showing they were immune and not accustomed to carrying the ticks; and personal investigation shows that in all of that low country there are very few affected bunches of cattle; and when the line is drawn by the Arkansas legislature it ought to be, instead of going to the north where it reaches the swamps from the west, shifted further south; and if a few men, who own infected cattle in that territory, could be induced to dip them it is only a matter of a few year's work until those counties can be thoroughly rid of the infection, the same as has been in some counties in Oklahoma and Tennessee. When that is done the quarantine line can be moved down.

DR. DINWIDDY: Thank you, doctor, for the suggestion.

DR. LUCKY: I want to say that I have taken probably more interest in the fever situation in Arkansas than would be natural for one not living in the state, but I am familiar with the needs of the cattle men in the northern part of Arkansas and with their situation, and I see a chance to benefit them greatly, and have gone to the
extent of writing both the Governor and Commissioner of Agriculture of Arkansas to get them to send a representative to this association who could go back and give them the proper recommendation; and I am sorry to say that neither of the officers have ever answered my letter.

PRESIDENT NORTON: Dr. Fisher of Ohio, is with us this morning. We would be glad to hear from him.

DR. PAUL FISHER: Mr. Chairman, I am not well prepared to speak on the question that is before the association now; that is, the matter of the control of Texas fever. We have not had it in Ohio for a great many years. As far as other diseases are concerned, however, I think there is nothing that this association can do that would do more good for the livestock industry of the country than to help the state authorities, livestock boards and state veterinarians to agree to cooperate for the control of infectious diseases, so far as interstate shipment of livestock is concerned. The principal diseases that affect Ohio in this respect are glanders in horses, and perhaps some other diseases, such as mal du coit and vesicular exanthema. It is important to control both of them. Although one of them is a comparatively harmless affection, the other is by no means such. As far as glanders is concerned that is perhaps even more important.

PRESIDENT NORTON: It would be interesting if you would describe the difference between the two diseases that you refer to.

DR. FISHER: The reason I brought up that subject was that, two years ago, we had quite an extensive outbreak of this disease in two western counties of Ohio, Colby and Defiance. The disease broke out in stallions and in a large number of mares that had been served by these stallions. It is exceedingly difficult of diagnosis unless one has a reliable history of the outbreak. Neither of these diseases had been in Ohio, and when the disease broke out it was impossible to make a diagnosis immediately. The appearance of the vascular part of the genital organs, the vulva, the surrounding skin, some times the inside of the legs, and the mammary glands, and the under side of the tail, besides the mucous membrane of the vagina, and in horses practically the same elisions, in the penis and the scrotum. This vascular eruption appears in both diseases. The principal difference is that in exanthema the period of incubation is much shorter than it is in mal du coit, being, on the average, probably four or five days, and varying from twenty-four hours to eight or nine days. In mal du coit it is usually longer, usually beginning after the tenth day. In exan-
these local symptoms very rapidly disappear, and in mal du coit similarly, but after a period, varying between a few weeks and several months, there are general chronic symptoms that end in death; that is, paralytic symptoms of the hind parts, which may also affect other parts of the body—muscles of the head, the lips, the ears and the eyes, and a peculiar eruption that appears on other parts of the body, all over the body. The characteristic symptoms of mal du coit and the paralytic symptoms may also appear in other diseases or may appear as independent conditions, and it makes the disease very interesting and very important. It is very important to be able to recognize the disease as soon as it appears, and there is nothing that will help us in doing that more than in exact knowledge of the existence of these diseases in other states, by information from those states immediately upon appearance of the diseases. We seem to profit very little by that. When something appears in a state it gets into the newspapers, or the Bureau of Animal Industry takes care of it and handles it, and we get it from that source. But otherwise each state appears to attend to its own business and cares very little for the rest of the states; whereas, if we co-operated in this matter and had some regular way of keeping informed of outbreaks of these diseases or shipments of diseases into certain states from other states it would save us a great deal of money and a great deal of time and work. I would like to suggest, as a matter to be discussed or acted upon in some way, some means of keeping ourselves informed as to what is going on in other states, diseases that are imported and also diseases that are exported.

A MEMBER: Where does this disease come from?

DR. FISHER: It was probably imported from Europe directly. I traced the disease to a number of different points. I traced it to mares in Indiana, but I was not quite sure whether those mares were infected from the stallions that were in Ohio long before I could get any history of the outbreak in that state, or whether the disease was transmitted in the other direction. And then I also had reports from the veterinarian who had made a personal investigation in Southern Michigan, where the disease appeared in several stallions and in a large number of mares. It was supposed there to be mal du coit, but later developed to be exanthema.

PRESIDENT NORTON: The doctor has stated that we ought to tell one another the conditions: I will ask the doctor if Ohio is free from those two diseases now.
DR. FISHER: Exanthema seems to appear here and there in isolated places. I found a mare in Loraine last summer, just about the time the disease broke out. A large number of animals were present there. The mare I found at Loraine had come from the West. That is the only information I could get as to its origin. I was testing horses for glanders in a livery stable, and there was a mare there that had the characteristic white scars that remained after the healing of the ulcers and pigmented scars. So it seems that disease must exist in other states, but I have never seen any reference to it in any reports. I am morally certain it exists all over the United States, but I have never seen any reference to it. I would like to hear from any member of the association who has ever met with exanthema at any time in any state.

DR. LAMB: I believe I met with it and didn't recognize it. I was called upon to investigate a supposed outbreak of mal du coit. I found two stallions that were affected with a disease of this character. They had also exposed quite a number of mares, and at the time of my arrival they were practically recovered from the disease. I examined carefully the penis of one of the stallions, and several of the mares exhibited a peculiar white cicatrix around the vulva, that was described by you, and while I decided that it was not mal du coit, I was not positive as to what the trouble was. But I am satisfied that this is exanthema. I have only the record of that outbreak in that one locality affecting two stallions and possibly twenty or thirty mares.

DR. THOMAS: I will say that in Nebraska I have recognized this exanthema for a number of years, and occasionally am finding it, as the doctor has described. Of course you know we have had mal du coit in Nebraska since 1891. The doctor has very nicely described it. The Bureau of Animal Industry has been working in Nebraska on this disease ever since 1892 at irregular periods, and I think their report now is that for more than a year they have not found a case in Nebraska, the disease existing in the Bad Lands or in the Reservation of South Dakota and Wyoming. They seem to think that it will take some time to remove it from that locality. And I might also state that there has been quite a serious outbreak of mal du coit in the southeastern portion of Iowa in the last year, in which there were two stallions and 175 exposed mares affected. I had a talk with Dr. Davidson, who is in charge of that disease, on his return from that part of the state, and he gave me those figures of the outbreak in Iowa and also gave me some very fine photographs of those cases.
The disease had run in Iowa to the extent that, before they knew it, one stallion had been destroyed before the Bureau officers got there to take charge of the outbreak.

PRESIDENT NORTON: Any other state that cares to report on conditions.

DR. GLOVER: I would like to report that in Colorado we are having quite serious losses from poison weeds. The last three months I have been traveling quite extensively over the western part of the state, investigating poison weeds, and I find that most of our losses there are due to larkspur, and that some of the loss is due to aconite and some to the death cama. The poison weed problem with us is quite a serious one. Cattle mange is also a very serious problem with us, and I will state that I have recently transported a few head of animals affected with scab to our stations at Fort Collins and tried to carry on some work there. The railroads were good enough to transport the cattle without cost, the cattlemen were good enough to furnish the cattle, so there is nothing in the way. Aside from these two things we have nothing more than the ordinary diseases and such as are commonly found in most all of the western states.

DR. THOMAS: Do you think the death cama causes a great amount of loss?

DR. GLOBER: Not a great amount, but every once in a while we do find loss. The weed is not extensively distributed over the state.

DR. THOMAS: In what animals?

DR. GLOVER: Mostly in cattle. Never have had any report of loss of horses, and no report that we can rely upon of loss in sheep. Seems to be mostly in cattle.

DR. THOMAS: What animals do you lose from larkspur?

DR. GLOVER: We lose both cattle and sheep. The cattle dying mostly from the dark larkspur and the sheep from the dwarf of the Cama, that seems to be the case always.

DR. THOMAS: How about losses of cattle from what is called loco?

DR. GLOVER: The loco question is confined mostly to the eastern part of the state. That was a very serious question a few years ago, but recently we have not had much trouble from loco, although there is some. But that is not as live a question with us now, as it was a few years ago, when our legislature offered a bounty on the loco weed.
DR. LUCKY: Mr. Chairman, if it is not occupying too much of the time, I want to explain briefly in regard to three things in the state of Missouri. One is in regard to the tick fever infection. I think it would probably be of interest to some of those who live on or near the quarantine line. In handling the traffic in southern cattle, we have attempted in this state to leave it wholly with the federal authorities. We only adopt quarantine regulations in case of emergency, where there appears to be a lack of authority under the federal statutes. And we do not pretend to take any part in the enforcement of the quarantine line, nor any part in the inspection of cattle during the inspection season, but we empower as state officials various federal inspectors who happen to be stationed on the southern border of Missouri, so that we can bring suit in the state courts and quarantine any infected cattle they find in this state. In 1900 there were eight counties in this state which were rather badly infested with fever tick, and during the last year we were able to find the tick fever on less than a dozen farms and the cattle were quarantined, and the owners required to keep them on pasture, until they were free from the fever tick. The owners were also instructed about dipping and they practiced it, and this year we have a man in the field doing nothing but hunting for infected cattle, and I don’t believe he will find ten bunches in the state. Nor do I expect to allow a fever tick to live till winter in this state. We had quite an extensive loss of cattle in Northwest Missouri, and in other parts of the state, last winter as a result of the intestinal parasite Oesophagostoma Infatum concerning which I have written a bulletin that will be issued from the office this week.

The most interesting piece of work that has come under my notice during the past year was an outbreak of glanders in Kansas City, which, to say the least, was somewhat exaggerated. Glanders became prevalent over the city, not near the stock yards in particular, but well distributed within the city limits and in some places out in the country, and I found here and there a case of glanders, one 15 miles out from Independence on a farm, where a man owned three horses, and the driving horse (which was frequently driven to Kansas City) was afflicted with glanders. I found glanders in a little barn in the outskirts of the city, where there was only one horse; in some stables there were four. From the first of January, 1903, to the last of July, 1903, there were 113 cases of glanders reported, and this number was rather alarming, so that at a meeting of the State Board
of Agriculture, on the 19th of August, I was instructed to go to Kansas City and do whatever was necessary to stop the spread of the disease. I went up there, and on Saturday night invited over all of the federal inspectors from the yards and slaughter houses, and instructed them about the work, laid off the city into plots and assigned each inspector to a certain section of the city, and instructed him to go up and down the alleys and examine every horse in that territory. We did this without any notice whatever to the public, on Sunday, in order to find the horses in, so that none of the owners could smuggle them away. We turned in 79 cases of glanders during September. I asked the Humane Society and the police department to report suspected cases of glanders, and the reports came in rapidly. During August there were 79 cases, September 54, November 13, December 15, January 11, February 6, March 5, and April none. When I first went there I called upon the city authorities and asked them to shut off the watering places, which they did. In April, when the disease appeared to be stamped out, they turned on the watering places again, and in May there were 13 cases. On the 4th of May the Board of Agriculture met and sent word to the mayor of Kansas City that if those watering places were not shut off permanently that quarantine would be placed on Kansas City and the Kansas City markets and that no horses would be allowed to go in or out of the city without inspection. The watering troughs were shut off again, and following that the number of cases began to decrease; last month I don't know if any were found. I have not had a report from Dr. Moore yet, but he found very few cases last month. The important point is this, that when I asked the city officials to shut off the watering troughs they were contrary about it, and even the Humane Society, after I had gone to each of the officers and explained the danger of spreading infection, rather insisted on putting in more troughs, and I had a hard time to get them to believe there was any danger from that source. Thinking I would get the unanimous support of the veterinary profession, I wrote, I think, to every state veterinarian in the United States, at least to all of those whose names were given in the annual report of the United States Department of Agriculture, and, to my great surprise, nearly all of the replies indicated that there was no particular danger from the watering troughs. So I could not submit this evidence to the authorities in Kansas City as I expected to do. The truth of the matter is that I do not think there is as much danger from a watering-basin, such as we find down here in this city on
Jefferson Avenue. I think it is some 12 or 15 feet across, and horses walk up and drink and go away, but in Kansas City the water-basins are circular in form, made of metal, and kept nearly full of water. They are forty inches across. Often times you find a glandered horse drinking at one of these troughs, and right opposite it a healthy team, drinking out of the same trough, their noses probably not more than a few inches apart; so that if a horse affected with glanders should happen to blow (which I have seen them do) it would spray the infectious material into the nostrils and eyes of the other horses. I am positive that these troughs were the medium through which glanders spread, and I regretted very much to have negative or indifferent replies from nearly all of the state veterinarians. Even from Dr. Austin Peters the reply was very cautiously worded. In the State of Massachusetts, which has less than half the number of horses that the State of Missouri has, there were condemned, according to the last annual report, 787 horses on account of glanders in one year. In this state there were probably less than 400 condemned altogether, and we have searched for glanders diligently. In Massachusetts, Dr. Peters informs me, the Humane Society requires the support of watering places at almost every cross-road, and these watering places have considerable to do with the spreading of glanders. I recommended to the board of public works in Kansas City that they do away with the public basins permanently and substitute for them stop-cock hydrants on every corner, or at least a sufficient number of them to supply water to all of the horses, from which the drivers could draw water in a bucket, which they could carry to their teams, so that each team could drink out of a separate bucket, and the spread of glanders would be obviated to a great extent. I was sorry I did not have backing of the profession in my arguments with these politicians.

DR. FISHER: I would like to ask Dr. Lucky a question. I got one of the letters that the doctor referred to, and I was very emphatic in stating my opinion as to the danger of watering troughs in spreading glanders. I think there is nothing more dangerous than watering troughs, as they give an opportunity for horses to come together with their noses. Now, the question I wanted to ask Dr. Lucky was how the horses in Kansas City were examined. whether they were examined with mallein or just clinically examined?

DR. LUCKY: In a big majority of cases clinical examinations were sufficient to warrant us in condemning them, but where it was necessary we used the mallein. The instructions were to test the
horses thoroughly; if they took the mallein test to use it and to hold them in quarantine and never allow any to get away under any conditions. I won't say all exposed animals were tested. In some cases, where we knew we were getting an accurate history when the owner would say, for instance, that he had fed some of his horses in one barn or in a separate stall and a diseased animal had not really been in contact with them, we simply examined the healthy horse and let it go at that. And we didn't always use the mallein test on the healthy horses in the barn in which we found diseased animals. We used it when we thought it was necessary.

DR. BECKETT: In Massachusetts, unfortunately, we have found a large number of cases of glanders and the animals were destroyed. Boston is, in a way, separated from the jurisdiction of the state authorities, that is, they have the control of contagious diseases under their own province, although all the cases reported in Boston come under the control of the state veterinarian. In Boston the troughs are looked upon as a source of contagion; I think that is generally admitted. The Board of Health see that they are cleaned out frequently, thoroughly scrubbed and cleansed as far as practicable, and they also enforce a regulation whereby all blacksmith shops shall be thoroughly white-washed or disinfected at least one a year, the regulation now calls for this twice a year, black-smith shops being a very fruitful source of contagion, where horses are tied up for several hours a day, and leave discharges of contagious material. That has also been a bad source of contagion, and is guarded against as much as possible.

DR. THOMAS: Under this head perhaps it might be interesting to mention the losses we had a year ago last winter in cattle from ergotism. In the year 1902 there was more ergot grown on the grasses than there had been all together for twenty years. We lost, no doubt, during the winter of 1902-3, thousands of cattle from ergotism simply because the ergot that they ate produced gangrene of from one to four feet, and of course the animal would be of no value. I wish to say in this connection that there were no abortions produced in cattle. I have seen, repeatedly, cows heavy with calf go to maturity. In horses there were no cases, and I found the reason was that horses that were fed hay that had the ergot in it, simply left it in the mangers and did not eat it.

PRESIDENT NORTON: I did not expect to report anything for Arizona in this connection, but will simply ask you as state and govern-
ment veterinarians to assist us in educating the stock men of the
country to the fact that Arizona allows no live stock of any class what-
ever to enter without a health certificate, preferably signed by a gov-
ernment or state veterinarian. Use this fact and make it as strong
as you want to. We are practically free from all diseases.

DR. CAREY: I would like the expression of some of the men
here in regard to the extent of the confidence they put in the mallein
test.

PRESIDENT NORTON: Dr. Carey asks that we have an expres-
sion of the confidence we have in the mallein test.

DR. LUCKY: Call the roll.

PRESIDENT NORTON: We have got to the point now where
we have to decide whether we can give reports of these tests and
have the election of officers and close up our business at this session,
or whether we have to have another session this afternoon or even-
ing.

A VOICE: Finish up.

DR. LUCKY: The mallein test is a subject that ought to be well
written up in some paper for next year, and all of us ought to come
prepared to discuss it. We cannot dispose of that today, and it will
probably not be disposed of at any single meeting of this association;
but I would like to look forward to our meeting next year when we
can have a good paper on the mallein test and have the experience
of the various veterinarians who are using it. It is too big a subject
to tackle now.

DR. CAREY: I would like to move that a committee of three
be appointed, of which Dr. Lucky be chairman, to collect data on this
subject. I believe it is of sufficient interest to the state veterinarians,
in connection with line of work, to be of great value. I believe
a great deal of data could be secured, which would give us something
more definite than we have now in the literature on the subject.
The motion was seconded.

PRESIDENT NORTON: Personally, I am heartily in favor of
this committee. The two points that I hoped would be discussed at
this meeting by veterinarians from different places, were tuberculosis
and glanders. All in favor of the appointment of this committee sig-
nify by saying “aye”; contrary “no.”
The motion carried.
DR. CAREY: I would like to suggest that the President put Dr. Knowles on that committee, as he has had a good deal of experience.

PRESIDENT NORTON: The committee will consist of Dr. Lucky, Dr. Carey and Dr. Knowles.

Dr. Carey requested that he be not placed upon the committee, as he had not had much experience with mallein. Dr. Tiffany was substituted for Dr. Cary.

PRESIDENT NORTON: If there is no further discussion on these topics, we have two standing committees to hear from. The first is the Committee on Anthrax, and I understand that Dr. Pearson has not rendered a report. The next is a report of committee on Humane Treatment of Cattle During Shipment, by Dr. N. S. Mayo, State Veterinarian of Kansas, who is chairman of the committee. He has sent a report and a letter, which the secretary will read.

The following letters and report were read by the secretary:

St. Louis, Aug. 21, 1904.

Dear Dr. Norton:

I leave tonight for Cuba to look over the situation there with reference to the position of Chief of their Bureau of Animal Industry, and it will be impossible for me to attend the meeting. This report does not properly represent the committee. Mr. Moore, whose letter is appended, being the only one to reply to my request for assistance, but it will afford something for discussion. I regret very much that I cannot be with you, but I wish you a very successful meeting.

Yours truly.

N. S. MAYO

San Antonio, Texas, May 6, 1904.

Dr. N. S. Mayo, Manhattan, Kansas.

Dear Doctor:—Replying to your letter of April 30, relative to human handling of live stock during transportation of same, will say I have seen so much inhuman prodding of stock in and out of the cars that I object: 1st, to prod poles used for loading cattle having any steel or iron spikes in the end of the prod pole—sharpened a little being sufficient.

2nd, the time allowed for stock on the cars while being transported could be extended twelve hours making the limit forty hours, even making the limit forty-eight hours would be more human than
one extra prodding in and out of the cars, as I have often seen in crowded pens.

Very respectfully,

W. J. MOORE.

Report of Committee on Humane Handling of Stock During Shipment.

Manhattan, Kan., August, 1904.

Mr. President:—

Your Committee, to whom was referred the subject of the Humane Handling of Stock During Shipment, beg to leave to submit the following report:

We believe the "28 hour law" in force at the present time to be an excellent law and there seems to be no good reason for changing it. While it is true that range cattle can go longer than 28 hours without food, water or rest, without hardship, young calves just weaned and gentle native cattle undoubtedly suffer if required to go for longer periods. There is always a tendency among the unhuman to stretch the law to the limit, and we believe that, considering all classes of live stock, the present law covers the situation well. It must also be considered that animals are often injured by rough usage in unloading and jamming in pens.

We also recommend that the use of prod sticks having sharp pieces of metal in the end be prohibited, if possible. A sharpened stick of wood being deemed sufficient in all cases.

It is probable that as long as stock is handled there will be cases of cruelty that cannot be covered by law, but we believe that when the owner realizes that it is for his interests to treat his stock humanely and bring them to market in good condition, more can be accomplished than by legal measures. We believe that the present law properly enforced is ample.

Respectfully submitted.

PRESIDENT NORTON: You have heard the report of the committee and Mr. Moore's letter. What will you do with report?

MR. BOLTON: I move the adoption of the report, with the amendment that the time ought to be extended to 40 hours instead of 28 hours.

Seconded by Dr. Knowles.

DR. EISENMAN: Do I understand this to be a recommendation to the Bureau of Animal Industry?

A MEMEBR: No, to Congress.
DR. EISENMAN: If it was taken up by the Secretary of Agriculture he could dispose of it in some way or other.

PRESIDENT NORTON: The thought of the committee, if I remember right, was that this should be a recommendation to the Humane Societies, which are pushing this matter.

DR. EISENMAN: The Humane Societies would have no jurisdiction in the matter, would they? That is a pretty serious question. It would have to be taken up by the Secretary of Agriculture to make it active and effective.

PRESIDENT NORTON: I would like to hear from others. I think we are getting into deep water on this question, if we adopt this resolution.

DR. KLEIN: I would like to say a word on that subject. The time limit for carrying cattle on trains is fixed by an act of Congress; consequently any change in the time would have to be made by Congress. The time mentioned in the amendment by Mr. Bolton, 40 hours, is, I think, entirely too long for cattle in the spring—I mean cattle which come off the range in winter or early spring condition. Cattle at that time of the year are entirely too weak to stay on the cars longer than 28 hours; and in some cases they are entirely too weak to stay on the cars 28 hours. I have seen cattle moved off the Texas ranges in the spring. I recall one case, in particular, where there were six cars of thin cattle shipped from San Angelo. Those cattle arrived in Fort Worth ten hours after the time they were loaded. In the six cars there were over 60 dead and one-half of the others were down. If we could depend upon the real judgment of shippers in this matter it would probably be better for all concerned, for the cattle as well as the shippers, to have a sliding scale of time, depending upon the condition of the cattle. But I think that is impracticable. I think that a shipper's financial interest would, in almost every case warp his judgment.

Now, as to cattle in fat condition, or in the condition in which they come off the ranges in the fall—and it is the range cattle which have the long run—I think that in many cases it would be better to keep them on the cars longer than 28 hours than to subject them to the unloading. I believe prodding of cattle is more harmful to them, than a few hours longer on the cars.

In regard to the use of the prodding pole, I want to say that I think it would be entirely impracticable to handle some classes of range cattle, at stock yards, without prodding poles with points in
them. You take a ca. of old bulls, and you could not do any more with them with a sharpened stick than you could with a brick house. I think that the points are necessary. They are often longer than they should be and are often used inhumanely, but I think observation will should be and are often used inhumanely, but I think observation will the bull or the steer has used the man inhumanly, given him a good deal more trouble than necessary. And of course men who work about stock yards are like all the rest of us—they are human and lose their temper.

MR. BOLTON: In support of the amendment, I agree in a measure with what Dr. Klein has said. But having to take off a train-load of cattle and feed just before you get to the stock yards, as in the case in our country, with most of the principal markets, is a hard restriction on the shipper. It is not often that a shipper of weak cattle, in the spring, will overlook his financial interests sufficiently not to unload when he has the opportunity; but to be compelled to unload within a few hours of the market and be subjected to charges and overcharges and shrinkage and a consequent fill, is not right.

DR. TIFFANY: Concerning what Mr. Bolton has said, rather than make an arbitrary time limit of 40 hours, would it not be better to leave the limit as it is with the right to extend it to 40 hours if the cattle could reach their destination within 40 hours?

MR. BOLTON: How are you going to change the law?

DR. TIFFANY: Would not the carrying out of my suggestion meet with what you would like to see done?

MR. BOLTON: If they change the law that will be inside the limits. You couldn't go beyond the law, but you could stop short any time you wanted to.

DR. KLEIN: I move that the whole subject be laid on the table.

Seconded by Dr. Lucky.

The motion prevailed.

PRESIDENT NORTON: We will now listen to the report of the Committee on Line and Open Season.

The report of the committee was read by Dr. Lucky.

It was moved and seconded that the report be adopted.

Carried.

Your committee on Line and Inspection Season begs leave to report as follows:
First—that we recommend that the U. S. Department of Agriculture allow special inspection to that portion of the Ponca Indian Reservation in Noble County, Oklahoma, which lies south of Salt Fork river and east of the right of way of the A. T. & St. Fe. Ry.

Second—that we recommend the restrictions requiring inspection for the movement of cattle from Custer County, Okla., be removed.

Third—that we request the Secretary of Agriculture of the U. S. to consider the advisability of having the federal inspectors, where practicable, to do all of the interstate inspection of Southern cattle during the inspection season.

Fourth—that, with these changes, the line and periods of inspection should be the same in 1905 as they were in 1904.

On motion, duly made and seconded, the report was adopted.

President Norton: The next report is that of the Press Committee.

This committee had nothing to report.

President Norton: Committee on Uniform Laws—Dr. Knowles.

Dr. Knowles: The report of the committee was read by the secretary.

To Dr. J. C. Norton, President:

We, your committee on Uniformity, beg leave to report as follows:

We recognize the necessity and recommend that each state receiving cattle from a sister state, do so without question when such cattle are passed or shipped in accordance with regulations adopted by the Bureau of Animal Industry.

2. It seems to your committee that uniform legislation in the several states is greatly to be desired, but in the opinion of your committee this cannot be accomplished. We do, however, recommend a free interchange of regulations, to the end that the several states authorities may conform their regulations to each other.
3. We recommend that where any state desires to protect itself from the introduction of tuberculosis in cattle from other states, that the Bureau of Animal Industry be requested to assist such state in so doing under such restrictions as will not interfere in the free movement of fat cattle to market for slaughter or for feeding for market.

4. We recommend that each state publish a list of its officers, inspectors, veterinarians and agents, and furnish the authorities of each state with a copy of such lists and the revision thereof from time to time, to the end that such officers may be known and used if occasion demands.

M. E. KNOWLES,
S. H. WARD.
M. M. HANKINS.

PRESIDENT NORTON: We will next hear from the committee on resolutions regarding tuberculosis.

DR. GLOVER: I will say that our report is ready, but as it is in Dr. Carey's hand-writing I will ask him to read it.

Dr. Carey read the following report:

Report of Special Committee.

Whereas, bovine tuberculosis is an infectious disease, transmissible to cattle, hogs and, in some instances, to man; and

Whereas, this disease is gradually extending its limits in many states and territories; Therefore, be it

Resolved:

1. That the federal, state and municipal authorities should take active and efficient steps toward checking the extension of bovine tuberculosis.

2. That the proper application of the tuberculin tests affords the best and most reliable means of detecting tuberculosis in the living animal.

3. That the tuberculin test should be made by the B. A. I. in all interstate trade of breeding cattle, and that the state and municipal authorities should apply the test to prevent local infection and extension of tuberculosis.

4. That in some instances, where valuable cattle can be safely and profitably handled by the owner or health authorities, the "Bang Method" may be employed in disposing of tuberculous cattle. But in all other cases the tuberculous cattle should be destroyed and the carcasses disposed of according to the methods of the B. A. I.
5. That cattle reacting to the tuberculin test may be shipped to slaughter houses for immediate slaughter, and must be shipped, sold and slaughtered under the supervision of the B. A. I. state or municipal inspector or inspectors.

6. That the inspection of breeding and dairy barns should be made more frequent and efficient by competent veterinary inspectors, special attention being given to ventilation and open air exercise of dairy cattle.

DR. GLOVER, (Chairman of Committee.)
DR. C. A. CARY,
DR. R. R. DINWIDDIE,
DR. ALLEN,
DR. MORRIS.

On motion duly made and seconded, the report was adopted.

DR. NORTON: Report of Committee on Resolutions. Dr. Tiffany is chairman.

DR. TIFFANY: Mr. Chairman, not for the same reason that was given by another gentleman here, but because he might be able to read his handwriting better than I, I suggest that our secretary read it.

DR. WALLACE: While we have no stated report to make, I simply wish to hand in these resolutions with our approval.

1. With the object of promoting co-operation between state and federal sanitary authorities, be it resolved:

That we, the Interstate Association of Live Stock Sanitary Boards approve and wish to encourage the issuance of state authority to officials of the U. S. Department of Agriculture engaged in live stock sanitary work.

2. In order to facilitate the dissemination of information of value in live stock sanitary work, be it

Resolved, That if special work of this kind is done by any member of this association or by his state, copies of the report or reprints of the same should be furnished the secretary of the Association for distribution to its members.

3. Believing that the proceedings of this Association should, as far as possible, contain something of immediate interest to each of its members, be it

Resolved, That the varied program of this meeting is heartily indorsed, and that for the future programs of similar wide scope are recommended.
Whereas, under present regulations governing the movement of southern cattle during the inspection season, the same animals may be repeatedly offered to different officials for inspection, be it

Resolved, That this association advises the adoption by both the U. S. Department of Agriculture and the various state sanitary boards of a regulation requiring the owner of Southern cattle, when requesting inspection, to make affidavit stating whether or not said cattle have been offered for inspection or rejected for 30 days previous, and also stating that they have been held in the same location for that time, with the purpose for which they are intended at their destination.

(NOTE: The above resolution, by motion duly made and seconded, was laid on the table.)

5. Whereas, it is the opinion of this Association that tuberculosis among cattle is on the increase in many states; and

Whereas the Department of Agriculture is endeavoring to protect our breeders from the importation or foreign cattle suffering from this disease; and

Whereas we believe that the interests of the smaller breeders demand that the Bureau of Animal Industry should exercise its authority and prohibit interstate traffic in dairy or breeding cattle unless such cattle have been tuberculin tested and found free from tuberculosis, be it

Resolved, That the Department of Agriculture is requested and urged to adopt and enforce such regulations as may best attain this end.

6. Whereas it is of the utmost importance to have in attendance at the meetings of the Interstate Association of Live Stock Sanitary Boards, the officials of the various states who have in charge sanitary control, be it

Resolved, That this Association at the proper time make an urgent appeal to the heads of the State Departments to have their states represented.

L. C. TIFFANY,
M. H. REYNOLDS,
A. H. WALLACE.

All of these resolutions were adopted, with the exception of Resolution Four, which was laid on the table.

DR. TIFFANY: I wish to introduce, verbally, another resolution: Resolved, That this Association tender a vote of thanks to
its officers for their splendid service during the past year, and to the proprietors of the hotel which we occupy, for their courtesy in extending to us the use of this hall.

Seconded. Carried.

MR. BOLTON: The Oklahoma building has also been tendered for your use. The commission invite you to come up and have the free use of the Oklahoma building on the Fair Grounds, which is free from interruption, supplied with plenty of chairs and all fixed up for you. I just simply wish them to be mentioned somewhere in this connection.

DR. TIFFANY: I will add also to the people of Oklahoma for their kind offer of the use of their building during the session of this convention.

Seconded. Carried.

PRESIDENT NORTON: The next business is the election of officers. The first is the election of a president. Nominations are in order.

DR. LUCKY: Mr. Chairman: The hour is growing late and I will not make an extensive speech in placing in nomination one of the most worthy gentlemen I have ever had the pleasure to meet. Our Secretary has served us faithfully for three years and has done a lot of hard work. He has been faithful in attendance upon meetings, and is as capable a man as there is on the face of the earth to fill the office of president; and I therefore place in nomination for the office of president for the coming year Mr. W. P. Smith of Illinois.

MR. BOLTON: I heartily join in the nomination of Mr. Smith. I was going to nominate Mr. Moore as president, but I would like to see him nominated as vice-president, and Mr. Smith nominated for president this year.

Seconded. Carried.

Dr. Carey moved that the president cast the ballot of the Association for Mr. Smith.

Seconded. Carried.

PRESIDENT NORTON: I hereby declare that I have cast the vote of the entire association for our honorable secretary as our president for the ensuing year.

MR. BOLTON: I wish to nominate Mr. Moore of Texas for vice-president.

Seconded by Dr. Knowles.
DR. REYNOLDS: I wish to place in nomination the name of Dr. D. F. Lucky of Missouri.

There being no further nominations, Dr. Glover and Dr. Lovejoy were appointed tellers.

Mr. Moore was declared elected, having received 14 votes against 6 for Dr. Lucky.

PRESIDENT NORTON: Nominations for secretary are in order.

MR. BOLTON: Now here is the place that Dr. Lucky fits. He is the best man to correspond all over the country. You always hear from Dr. Lucky when you never hear from anybody else. He would make an ideal secretary. He is a hustler and a worker, and I think he ought to be made secretary by acclamation.

DR. KNOWLES: Admitting all that our genial friend from Oklahoma says, we have a man in the Northwest whom we think a great deal of; we know of his executive ability and believe that he would make a competent secretary for this Association; and, in addition to that, he would represent a different section of the country from any that has ever been represented here before, and would probably stimulate more interest in the Northwestern states. I therefore, Mr. President, take great pleasure in nominating Dr. Ward of Minnesota.

I should like to withdraw my name from this contest, for several reasons, which I will not take time to explain. But really I won't have time to give this matter the work and thought it ought to have, and I would like to be excused.

MR. BOLTON: My candidate is a little shaky and thinks he will get left again, and I move you that the nomination of Dr. Ward be made unanimous and that the secretary be instructed to cast the vote of the association for his election.

Seconded. Carried.

SECRETARY SMITH: The secretary casts the unanimous vote of this Association for Dr. Ward as secretary.

PRESIDENT NORTON: I hereby declare Dr. Ward elected secretary and treasurer of the Interstate Association of Live Stock Sanitary Boards for the ensuing year.

Speeches being called for, responses were made as follows:

PRESIDENT-ELECT SMITH: Mr. President and gentlemen of the Association: If I had had the least idea that you were going to do any such thing as you have done I would have put in the last couple of weeks in preparing a speech and tried to give you something that would be worth while listening to. I assure you from the bottom of
my heart that I appreciate the courtesy you have shown me and the kindly feeling that has prompted it, and I can only believe that the reason for it is that you have appreciated my efforts in the past three years to fill the office of secretary and treasurer to the best of my ability. I want to say that if those efforts, assisted as far as they have been, by the very able gentlemen whom you have heretofore elected president, have resulted in bringing together a body of men who have done the kind of work that you have seen done in this and other meetings, then those efforts undoubtedly were not in vain. I think I can also say, truthfully, that the interest taken in this Association, and the attention given to the work done by it have been constantly on the increase, not only by the members of the sanitary boards of the various states, but by the Department of Agriculture as well; and the importance of the work to be done in the future can only be gauged by the amount of interest which the membership generally take in it and the efforts that we put forth not only to hold the membership which we now have, but to get into active work in this association every person connected with sanitary work in the various states of the Union. The financial part of this association, as you all know, is a very inconsiderable factor. The annual assessment which has been made upon each state, as it applies to the state at large, is so small as to be hardly noticeable. I have been informed through personal interviews with members of this association, and through correspondence with members who are not here, that a great many of the states have no provision, no legal way, by which this small pittance of ten dollars, compared to the wealth of a state, can be paid over to this Association, and therefore some states have not contributed. The importance of the work which is being done by this Association will be revealed by the distribution of our printed reports. The more money the more reports—you can see that. If we could send two or three hundred copies of our reports to each state and let them be sent to the men who make the laws in those states, there is not any question but what, when appropriations are asked for to carry on sanitary work, these people would be sufficiently informed to know the importance of the work being done by this association. We have been able to print 200 copies; and when you stop and consider the 40 or 45 states and territories into which those copies go, you will see it is a very small number for each. If each state would pay the assessment made upon it, it would give us ample funds to print all the copies we want. Every gentleman here realizes that after the
copy is once set up, the additional cost for extra numbers is very small; the principle cost of printing any kind of a publication is the setting up of the type in the first place. I simply mention this because it is one of the things that will enable us to grow as an institution and to have the importance attached to us that belongs to us, by simply educating the people in the various states to the important work we are doing. With the assistance which I have every reason to believe we will have from the very able secretary, who has taken the mantle that has fallen from my shoulders, I am satisfied that the report for the next year will be very valuable, and I sincerely hope and trust that every member of this association will go home feeling that he has a work to do in getting not only the co-operation of the sanitary authorities, and the legislative branches of his own state, but also determined to do whatever missionary work he can in the neighboring states, so that we will have a larger representation at our next meeting. I thank you again. (Applause.)

COL. MOORE: I will not take up any of your valuable time in speech-making—there are so many things to come up—but I thank you for the honor you have bestowed upon me. (Applause.)

DR. WARD: Mr. President and Gentlemen: I do not feel that I can conscientiously thank you for the position that you have elected me to. I realize there is a vast amount of work connected with the office, but trust that I shall have the co-operation and the assistance of the members. You can depend upon it that I shall put forth my best efforts to further the interests of the association. I hope the funds will be turned over to me before I leave. (Laughter.)

PRESIDENT NORTON: That is an indication that we have a good secretary.

PRESIDENT NORTON: Next in order of business is place of meeting.

MR. BOLTON: Mr. President, last year, at Denver, the City of Guthrie, Oklahoma, tendered the association an invitation to meet there this year, but in deference to Dr. Lucky and the World's Fair we came down here this year. The City of Guthrie now renews the invitation it made last year, and I desire to read a letter from the Secretary of the Guthrie Commercial Club, in which he says: "We wish you to extend an invitation to the Interstate Association of Sanitary Boards, while in session at St. Louis next week, to hold their next meeting at Guthrie. You can assure them of all modern conveniences and a warm welcome, and I believe that it would be an interesting
thing for them to visit this new territory and see what we have done in the short space of 15 years. We would be pleased to have you urge the matter upon them, and assure you that we will do our part towards entertaining them if they will come this way."

And I wish to say also that we will meet you in every manner that is hospitable, cordial and sincere, and give you a welcome that you will take home with you, that you will feel for a long time. 'We want you to come to Oklahoma and see what we are doing.

DR. TIFFANY: I move we unanimously accept the invitation, and that the newly elected officers fix the date of the meeting.

Seconded. Carried.

It was moved that the time of meeting be left to the president and secretary.

Seconded. Carried.

The meeting then adjourned.