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DEPARTMENT OF AGRICULTURE.
SPECIAL REPORT—No. 50.

THE DISSEMINATION
OF
TEXAS FEVER OF CATTLE,
AND
HOW TO CONTROL IT.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1882.

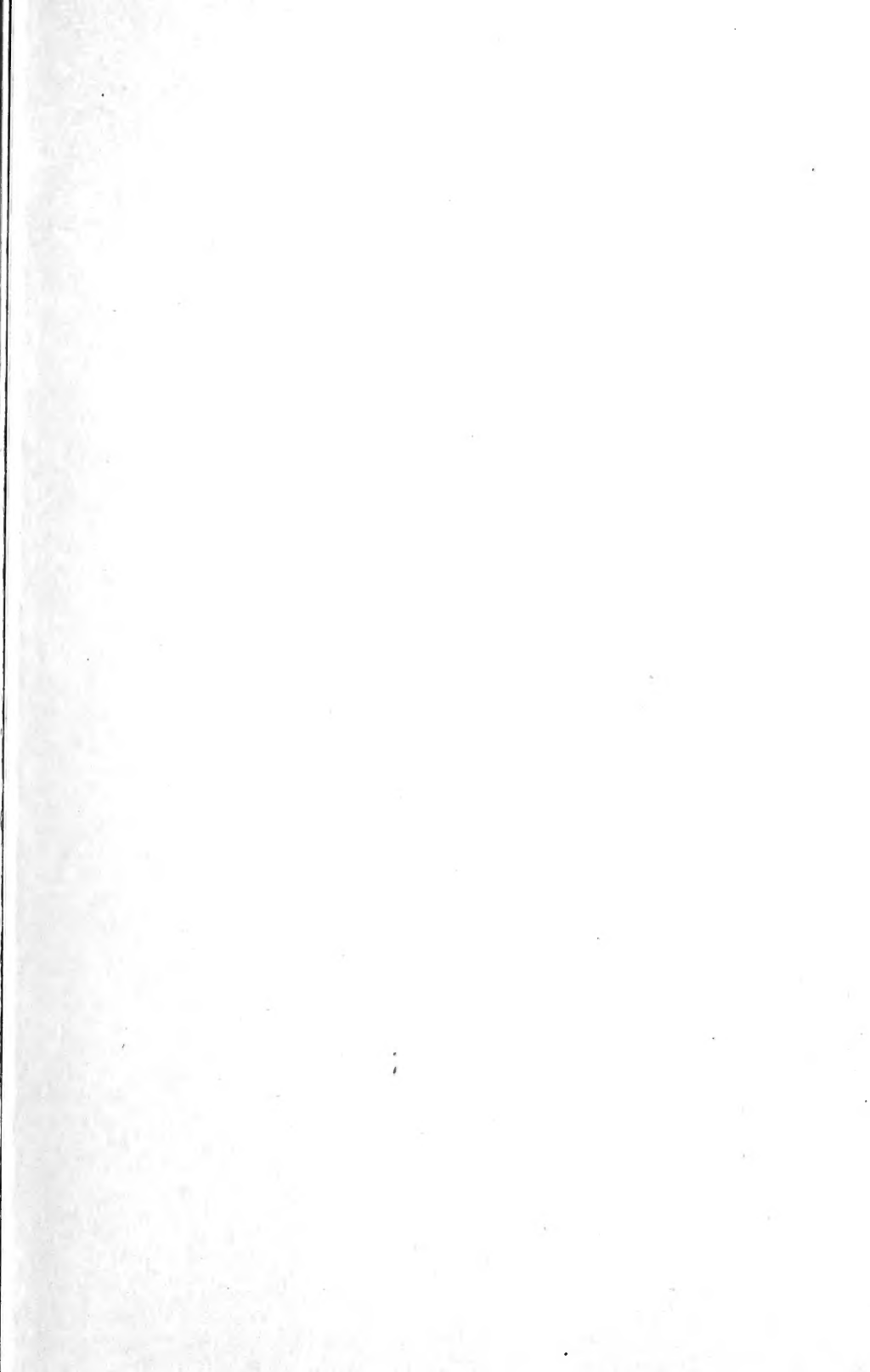


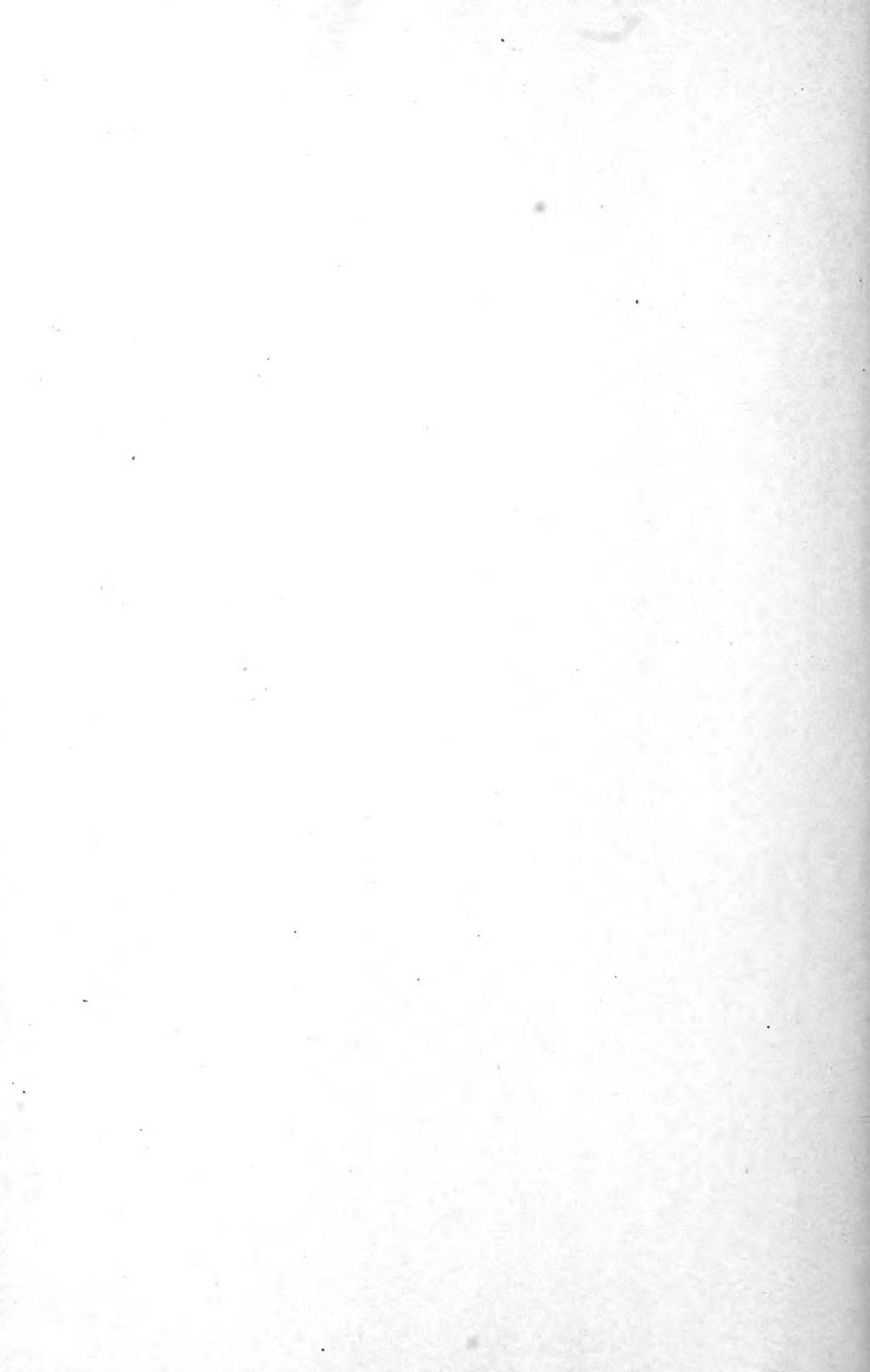
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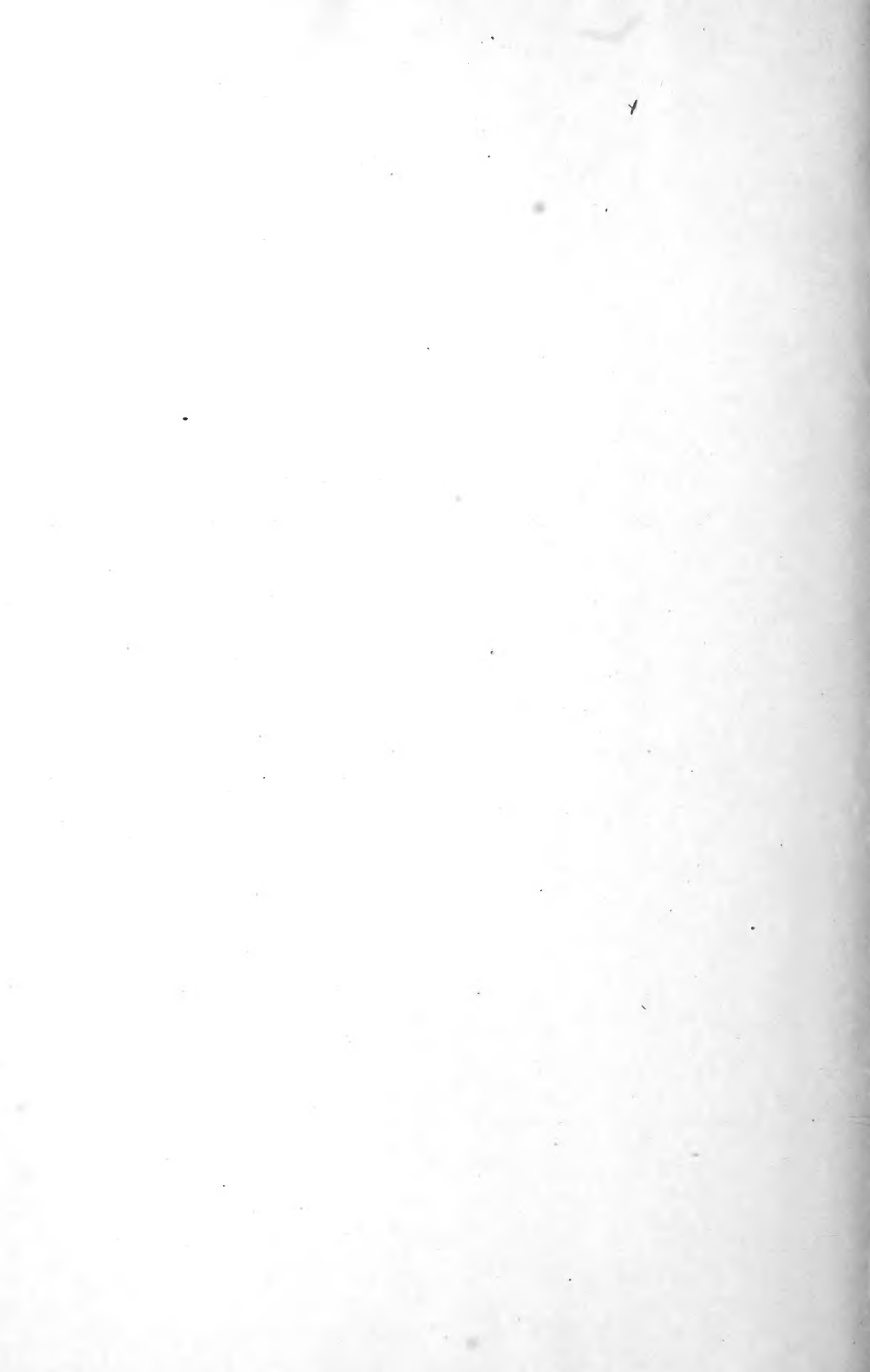
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SPLENIC OR TEXAS CATTLE FEVER.

During the past two months Texas fever of cattle has prevailed in many localities in the Northern States, and, as is generally the case, has proved very fatal. The department has received many letters and telegrams from farmers and stock raisers asking for assistance and advice, and in some cases, where the disease was prevailing to a great extent and in a most destructive form, promptly responded by dispatching a competent veterinarian to the locality of the outbreak. Dr. Hunt, of the State board of health of New Jersey, was directed to proceed to Berks County, Pennsylvania, and investigate the cause of an outbreak of a very fatal disease among cattle in North Heidelberg Township, of that county. Some thirty head of cattle had died before his arrival there, and but two mildly affected ones remained. These cases he did not regard as typical, and as he was unable to secure an affected animal for *post-mortem* examination, he could not determine the exact nature of the malady. As the disease seems to have originated in the locality, and has since disappeared, the presumption is that it was not splenic fever.

In the latter part of July, Mr. R. C. Saunders, of Evington, Campbell County, Virginia, visited the department, and stated that Texas cattle fever was prevailing in a most malignant and fatal form in that county, and, on behalf of himself and neighbors, asked that a veterinarian be dispatched to the locality of the outbreak. Dr. Salmon, who was then engaged in an investigation of this disease in North Carolina, was ordered, by telegraph, to at once proceed to the above-named locality and report to Mr. Saunders, and afford whatever relief was in his power.

A meeting of the citizens of the county was held immediately upon his arrival there, and measures were at once instituted for the prevention of the further spread of the malady. From information furnished by the stock raisers who attended this meeting, it was learned that cattle valued at \$15,000 had already been lost by the disease.

On August 7, Dr. James E. Reeves, of Wheeling, secretary State board of health of West Virginia, wrote the department that "an exceedingly fatal, specific, communicable fever of cattle has appeared in the county of Brooke, and the State board of health has been appealed to for assistance. The disease made its appearance about the 20th of last month among native cattle, soon after the herding among them of several lots shipped directly from Alabama. The symptoms point unmistakably to splenic fever."

Mr. James Mairs, of Steubenville, Ohio, both telegraphed and wrote the Department, on August the 15th, stating that he had lost sixteen head of cattle by Texas fever, that the disease was still raging on his and adjoining farms, and asked the department to send a veterinary surgeon to give advice for the suppression and further spread of the malady. Dr. William. B. E. Miller, the veterinary inspector of the Department at Camden, N. J., was directed by telegram to proceed to the locality of the outbreak, and give such assistance and advice as he might deem necessary. His detailed report of this outbreak, as also that which occurred in Brooke County, West Virginia, will be found below.

Mr. F. D. Curtis, agent of the department at Charlton, N. Y., on the 26th ultimo wrote as follows:

Texas cattle fever has appeared at Cortland and Weedsport, N. Y. A number of cattle have died. The infected farms have been quarantined. The disease came from Texas cattle pastured on these farms. Native cattle afterwards allowed to run on these fields contracted the disease.

Mr. John Choate, Auburn, N. Y., sheriff of Cayuga County, on August 30 wrote the department that Texas cattle fever had made its appearance in that county, and that many of the finest animals in that section were dying of the disease.

On the 4th instant, Mr. O. C. Curier, Bridgewater, Dak., telegraphed the Commissioner as follows:

Texas cattle fever has broken out in our best herds. Infected by Southern cattle brought into locality.

Below will be found a detailed report of the outbreak in Ohio and West Virginia, forwarded by Dr. Miller, who made the examination, and a timely paper from the pen of Dr. D. E. Salmon.

THE OUTBREAK IN OHIO AND WEST VIRGINIA.

Hon. GEO. B. LORING,
Commissioner of Agriculture:

SIR: In compliance with instructions from your department I at once proceeded to Steubenville, Ohio, arriving there on the evening of the 17th instant. On inquiry I found the farm of Mr. James Mears to be situated near Richmond, an inland town 12 miles distant. Early on the morning of the 18th I drove to his farm. I found Mr. Mears at home, and from him obtained the following information: About a month prior to this time he purchased twenty-six Cherokee and Missouri steers at the stock-yards at Saint Louis, Mo. He shipped them to Steubenville, Ohio, via Pittsburgh, Cincinnati and Saint Louis Railroad, and drove them to his farm near Richmond, Ohio, along the public highway. He could give no positive history of their travel prior to the time of purchase, only so far as the statement of the party from whom he bought them could be taken for the facts, which was that he brought them from South-western Missouri.

About a week or ten days after their arrival at the farm he went to

the pasture-field to give them some salt, and found one of them dead. He thought but little of that occurrence, as he often had one or two cattle in a lot of newly-purchased stock to die before they had thoroughly recovered from the effects of long shipment, and supposed this to be a similar case. A few days after he had occasion to cross the pasture again, and was surprised at finding *four* animals dead and several others sick. He then became alarmed, and called in a local cow doctor, who, after opening and examining one of the animals that died while he was upon the premises, informed Mr. Mears that he thought it to be "Texas Fever," as the symptoms of those then sick and the *post-mortem* appearances of the dead were very similar to what he had recently seen described (in a work on the diseases of cattle) when suffering or dying from that disease. He was not positive, however, as he had never before seen a case of it, and advised Mr. Mears to correspond with your department at Washington, and have the matter investigated. He also consulted his neighbors and some of the local authorities concerning the outbreak, and they coincided with the doctor, and thought it the proper plan to ascertain to a certainty just what the disease was, and then they would know how to proceed in the matter. Mr. Mears acted accordingly.

From the time of discovery of the first dead animal, thirteen had died in the herd of twenty-six. Another herd, pasturing in a field a half mile distant (but immediately adjoining the public road, along which the infected herd had been driven), had become infected and three of them had died, making sixteen in all. I repaired to the pasture-field in which were the thirteen animals left of the original twenty-six. I found twelve of them together, one of which, apparently, was suffering from the effects of the disease. In another part of the pasture was an animal apparently in the last stages of the malady, while the other eleven were apparently unaffected or entirely recovered. Mr. Mears pointed out eight of the animals that had been sick, as he thought, but at this time they showed no other external indications of illness than a hollow appearance at the flanks, together with a loss of flesh. The animal first mentioned as suffering from the effects of the disease was still very weak, and walked with a staggering gait; he was much emaciated, was unwilling to move about, and while apparently convalescing, was still a very sick animal. The one found by itself was evidently suffering intense pain, as his groans could be heard quite a long distance from where he was found. His pulse at time of visitation was about 90° , respiration 50, temperature 107° . He was lying on his left side in the bottom of a shallow stream of water, and could not be forced to move, and Mr. Mears just here informed me that several of the animals had died in this stream in the same position, thus showing a tendency to seek a wet or watery place when nearing the fatal termination of the disease, either for seclusion or to quench their excessive thirst. Mr. Mears stated that as soon as one of the animals became very sick he would isolate himself from the others, and would stand and gaze vacantly into space, as though perfectly unmindful of passing events, but would start and run whenever approached by a person, and endeavor to hide himself again, and would continue in that way until near the fatal stage of the disease, when he would lie down, and from that time would refuse to move or to care for any person or thing. He also stated that a few of the animals appeared to be wild when first infected, and would act as if they would attack any person who would approach them. One or two of them were so severely handled that they suffered apparently from convulsions.

On visiting herd No. 2 in another pasture-field, I found twelve fine,

fat steers which had been purchased and brought to the farm in the same plan and manner as herd No. 1, about a month before the purchase of the infected herd (or No. 1). As before stated, three of this herd (originally composed of fifteen head) had died. I found two sick, one of these evidently in the very first stages of the disease. Being desirous of making *post-mortem* examinations of animals in the first stages, as well as of those that had died of the disease, I asked for and obtained permission to slaughter this animal. Before doing so, however, I secured the animal for *ante-mortem* examination.

To all appearances, to an *inexperienced person*, this animal might have passed for one perfectly well, particularly so if they had attempted an examination without having first secured the patient. On taking the pulse I found it to be about 80, respiration about 45, but somewhat accelerated by our efforts to secure the patient. The respirations in this case were not labored, but short and rapid. The visible membranes were injected and reddened, mouth hot and dry. The urine was voided during examination, and was almost coffee-colored, and the act of urination was attended with apparent pain. An attempt was also made to defecate, but was attended with but little success, at first the feces being scanty and hard. A second attempt, however (made while the thermometer was inserted in the rectum), was more successful, and the discharge was softer in consistency. The temperature was 106 $\frac{3}{4}$ ° F. I then slaughtered the animal, bleeding him precisely as I would if he was being slaughtered for food. His fore leg and shoulder were removed, after which the ribs were carefully taken off, one by one, from their attachments at the spinal column; the abdominal muscles were carefully removed, and the entire abdominal and thoracic viscera exposed without displacement, thus giving a full view of the entire contents on one side. The first object to attract attention was the spleen, which was very much enlarged and thickened. The serous membrane of this, as well as the other organs, was highly colored; blood-stained spots could be seen, and ecchymosis pervaded all over the organ. On attempting to remove the spleen it was found to be so softened that it would scarcely hold together, and was torn in several places before it was successfully removed. The pericardium contained within its walls considerable effusion partially mixed with blood. The omasum was considerably impacted, its contents being dry and hard. The liver was somewhat enlarged and its capsule torn in one or two places. It was straw-colored, and very different from one in perfect health. The gall-bladder was very much distended, and being filled with bile, which in color resembled port wine or dark molasses, and was about the consistency of tar. When poured out on a board the contents were so thick that they would scarcely run. The urinary bladder was entirely empty, owing to the fact that the animal voided his urine just a few minutes before death. The bladder, when cut open and turned inside out, showed considerable inflammation. The lining membrane was injected, thickened, and irritated, and several large blood-stained spots appeared upon it. The kidneys were enlarged and showed in their medullary portion considerable inflammation. In one—the left—there was about a tablespoonful of pus confined in and around the medullary and pelvic portion, and the kidney itself at this point had begun to take on a process of decay. The stomach and other portions of the whole intestinal tract showed no other than a normal condition, except the impaction of the omasum referred to above.

The lungs were apparently in a normal condition, except a very small portion of one of the inferior lobes of the left, which had undergone a

condition of hepatization. There was quite a quantity of serum floating in the thoracic cavity, which, together with the little affection of the lung, might indicate that this animal had been suffering from a slight attack of pneumonia at the time of incubation of present disease. There was also some inflammation of the bronchia, and the larger tubes contained quite a quantity of mucous deposit; the tongue and lining membranes of the buccal cavity were slightly reddened in appearance, but were otherwise in a healthy condition. The carcass was then buried and we left the pasture.

On the morning of the 19th I again visited Mr. Mears' farm pasture; found the animal referred to as being very sick yesterday dead, it having died about two hours before. I immediately prepared for a *post mortem* of the carcass. On exposing the internal viscera, as in the preceding case, the first object to excite curiosity was the spleen, which, in this instance, was almost black, and on touching the capsule it broke open, and the contents were found to be semi-solid, in fact almost liquid, and escaped and ran over the walls of the stomach when I made an effort to remove the spleen. The organ itself was more than three times its usual size. The gall-bladder was filled with viscid bile, black as tar, and semi-solid. The urinary bladder was filled to its utmost capacity; the contents were thick and very dark-colored, almost black. The lining membrane of the organ was very much irritated, thickened, and hardened. The kidneys were very much enlarged, softened in the medullary and pelvic portions, and were filled with viscid pus. The liver was enlarged and softened, and was almost corn-colored in appearance. The heart was normal in size, and the ventricles were filled with serum. Much serum was also found floating in the thoracic and abdominal cavities. The blood that escaped from the vessels when cut apart was thin and watery in appearance, and the vessels themselves did not appear to contain the usual quantity of blood. The lungs were considerably enlarged, the air cells and the larger bronchiæ being filled with mucous deposit. The stomachs were distended, the omasum being filled and impacted until it was so hard that it could scarcely be cut with a knife. Inflammatory products were poured out along the whole intestinal tract; the rectum was filled with dry, hard feces, and the mucous membrane of all the organs was inflamed and irritated. Decomposition was rapidly going on in all parts of the animal, and the stench arising therefrom was very offensive.

I now took occasion to point out to the farmers and stock raisers, many of whom were present during my examinations of the two animals, the danger of the spread of this disease to adjoining farms from the careless manner in which the carcasses of those first dying had been allowed to lie just where they had died, unburied or unburned. The dogs had eaten of their carcasses, and had dragged portions through adjoining fields and pastures until, through the complaint of some of the neighbors, the carcasses had been covered with dirt or burned, having been exposed, however, from one to two weeks prior to that event. I also cautioned all those interested against driving stock along the public road over which these cattle had been driven, and which runs directly through Mr. Mears' farm and along his pasture fields. I also advised the immediate quarantine of the infected premises, and the transfer, sale, or interchange of cattle in the immediate vicinity, or from the premises, for at least ninety days.

Having concluded my examination, I had the carcass buried and disposed of as in the former case, and returned again to Steubenville. I then learned, through a local daily paper, of the existence of a disease

among the cattle in Brooke County, West Virginia, which was thought to be "Texas Fever," and I thought best to visit that State while so near by, and ascertain the truth of the matter. Accordingly, I drove from Steubenville to Wellsburgh, W. Va., on Sunday morning, August 20, and called upon W. K. Curtis, M. D., a prominent physician of that town, and also the president of the county board of health of Brooke County. From Dr. Curtis I obtained the following information: During the early part of the summer J. E. Curtis and son, the father and brother of the doctor, purchased two or three car loads of young cattle at different times in the State of Alabama and brought them to their farm, near Bethany, Brooke County, West Virginia, where they disposed of them to other farmers of that section who saw fit to purchase. The last car load was brought north about the middle or latter part of the month of June, and immediately disposed of. In a short time a choice milch cow belonging to Mr. J. E. Curtis became sick, and in a few days died. She had been kept by herself, but run upon the pasture land occupied by the Alabama cattle while they were in Mr. Curtis's possession. About the same time several of the parties who had purchased cattle of Mr. Curtis had sickness among their animals, and in a few days several deaths had occurred.

The citizens thus became alarmed, and Dr. Curtis, as president of the county board of health, was summoned to look into the matter. He at once pronounced the disease "Texas Fever," and decided that Alabama cattle brought into that section by his father and brother were the source of infection, and immediate steps were taken to prevent the farther spread of the disease if possible, by alarming the public and urging them to cease the traffic in cattle. Dr. Curtis, together with the other members of the county board of health, all of whom are practicing physicians, made *post mortem* examinations on several of the animals that died or were slaughtered for the purpose, and their description of the appearance of the animals compares so favorably with what I found in the second animal, at Mr. Mears' place in Ohio, that I deem it unnecessary to report it here. I was positive of the nature of the disease existing there, even before I had seen a case of it. Accompanied by Dr. Curtis I then drove to Bethany, a distance of eight miles, and visited several farms where they had the disease. Fortunately most of those that had it kept but very few cattle, or their losses would have been greater. My examination of the cases seen confirmed the opinion of Dr. Curtis and my own suspicions, as without hesitation I pronounced it "Texas or Splenic Fever." I continued my investigations on the morning of the 21st of August, and the result of the whole may be summed up as follows:

J. E. Curtis, Bethany, Brooke County, West Virginia, one cow died after first attack.

Moscow Davis, Bethany, Brooke County, West Virginia, had three cows infected; two have recovered, one still sick. Temperature at time of visitation on the evening of August 20, 107 $\frac{3}{4}$.

Hugh Mitchell, Bethany, Brooke County, had two cows sick, one of which died; other still very sick. Temperature August 20, 107 $^{\circ}$, respiration 44, pulse 86. Revisited this animal August 21, in the early morning, and she died while I was there.

James P. Rogers, Bethany, Brooke County, has about 30 cattle, all of which have been exposed. Has had five sick, four of which have died.

John Atkinson, Bethany, Brooke County, had one cow which was

kept entirely by herself, but came in contact with Mr. Rogers' cattle, when she took disease and died.

Mr. McCray, Bethany, Brooke County, has had four sick; all have died.

Samuel Atkinson, Potomac, Brooke County, one cow sick, which died.

Mr. Buckhannon, Bethany, Brooke County, lost one animal; thought it was from snake bite; don't think he had splenic fever. He has about fifty head of cattle. Some of them are Alabama cattle, purchased from the first lots brought up from that State. All are perfectly well.

James Smith, West Liberty, Ohio County, West Virginia, brought some cattle from Wetzel County, West Virginia, to his farm about four months since. Some time after he lost a cow; doctor told him that she died of laurel poisoning. There is no laurel anywhere in that section. He has since lost seven others. He has had fourteen sick in all; some are still sick.

John McIntyre, Wellsburgh, W. Va., has had four sick, and lost all.

On Monday afternoon, the 21st instant, I met the county board of health and the county commissioners at Wellsburgh, and informed them of the nature and extent of the disease then existing in that section and the adjoining county, and also in the State of Ohio in the county immediately across the river, and gave them all the information I possibly could concerning the best method to adopt in order to prevent the spread of the disease, and to ultimately eradicate it.

The commissioners, acting under my advice, immediately quarantined the county, and took measures to prevent the interchange of cattle in the infected localities for at least ninety days to come, to carefully guard infected herds, disinfect infected localities, and to use every available means to secure the desired object.

As a result of my investigations, both in Ohio and West Virginia, I append the following summary:

DISEASE "*Splenic or Texas Fever.*"

SOURCE. Brought into Ohio by the purchase of and importation of cattle from Southwestern Missouri, commonly known in the West as Cherokee cattle.

Number of cattle infected or exposed to date of visitation.....	41
Total number sick to date of visitation.....	31
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Total number of deaths	18
Total number still sick.....	3
Total number recovered	10
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Total.....	31

Brought into West Virginia by the purchase and importation of cattle from the State of Alabama.

Total number of animals infected or exposed to date of visitation as far as known.....	57
Total number sick to date of visitation.....	37
Total number of deaths.....	22
Total number still sick.....	8
Total number recovered.....	7

You will thus see that upon combining the number sick in both States, we have a total of 68, 40 of which had died, or about 66 per cent., not including the chances of other deaths from those still sick. Of the total number exposed in both States as far as known, 98 had incubated the disease at time of visitation. I observed another fact in connection with this disease that is worthy of notice just here, and that was, that nearly all of the animals that had escaped it were more or less mixed with the genuine Texas stock, thus showing that it is more fatal to

native cattle, while the genuine Texas animal would seem to possess an immunity against the disease.

I am also satisfied that it is both contagious and infectious, as it was positively proven in the several instances wherein the animal infected did not come in actual contact with any diseased animal at all, but received the germs of disease from atmospherical or other sources.

There is great danger, therefore, of the spread of this disease all over the country by the shipment of cattle from the South and West to the Eastern States, either for slaughter or stock purposes. I have been informed that it is prevailing to quite an extent in some portions of New York State, and during the last month it has made its appearance in New Jersey, and I believe the disease now existing in Berks County, Pennsylvania (which the Pennsylvania authorities claim is "*anthrax*," and not contagious, but entirely due to local causes), from the descriptions given in all the local papers, is the same.

I have the honor to be, very respectfully, &c.,

WM. B. E. MILLER, D. V. S.

CAMDEN, N. J., August 22, 1882.

THE DISSEMINATION OF TEXAS FEVER, AND HOW TO CONTROL IT.

Hon. GEO. B. LORING,

Commissioner of Agriculture:

SIR: In accordance with your directions, I respectfully submit the following considerations in regard to the dissemination and prevention of splenic or Texas cattle fever, which have been suggested by Dr. Miller's report of outbreaks in Ohio and West Virginia.

In the first place, I would call attention to the fact that this is a disease with which the veterinary profession is not very familiar. The outbreaks, though frequent, have generally occurred in the Southern, Southwestern, or Western States, in localities where, until very recently, there have been no veterinarians; and when these have happened at the North, the course of the disease has been so rapid that the professional man has had little opportunity to study its peculiarities before it had exhausted itself by the death of all the susceptible animals exposed to it. As a consequence, members of the profession at large have not those clear ideas in regard to its origin, its dissemination, and the best means of suppressing it which we should expect had they been for a longer time in contact with it. And for this reason, while the veterinarian who has had little experience with it may recognize it at once by the symptoms and *post mortem* appearances, we cannot expect him to be as reliable a guide for the measures to be adopted in controlling the plague as would be the case had he watched and studied it for years.

The quarantine of sick animals and infected grounds is so generally applicable to infectious diseases as a class, and has been our chief reliance for so long, that it is not surprising to find it advocated for an affection like Texas fever, which has the same general characters, even though there are peculiarities in regard to it which may render this measure, as generally applied, inexpedient or plainly objectionable. We must not forget, however, that the owners of sick cattle and infected grounds have certain rights as well as the public at large, and that while it is our duty to assist the public in protecting itself by advocat.

ing such regulations as are necessary for accomplishing this end, it is equally our duty to be certain that the regulations proposed are necessary, and that they do not bear unduly upon the already suffering parties, or restrict the business of the community further than is absolutely essential.

To make it plain, therefore, what steps should be taken by the local authorities in the case of such outbreaks of Texas fever as have recently occurred in Ohio, West Virginia, New York, and other States, where there is no permanent infection with the germs of this disease, it is necessary to enter into some details concerning the spread of this infection.

HOW IS TEXAS FEVER DISSEMINATED?

Those who have had much experience with Texas fever, who have watched the outbreaks in the Northern States, who have followed its ravages along the border line of the permanently infected district, and have studied it in its native haunts, are practically unanimous in their conclusion that the Southern cattle may only be separated from susceptible ones by a board fence, or that they may even occupy the same stable for an indefinite time, without causing the least appearance of disease. There is equal unanimity in the conclusion that if these susceptible natives are placed upon grounds, even though these be roads, yards, or commons to which the Southern cattle have had access within two, four, or six months, they are liable to contract the disease in its most virulent form. On the other hand, it is believed that the sick natives have never conveyed the disease to other susceptible animals either directly by contact or indirectly through the atmosphere or by infecting the pastures on which they run. Having frequently seen sick animals in the same lots with susceptible well ones, and having injected considerable quantities of the blood of recently dead animals beneath the skin of susceptible cattle without any transmission of the disease, I am perfectly convinced that this opinion is correct, and that the sick native animals are in no sense a source of the infection.

In regard to the danger of the disease being spread from the dead carcass we cannot be so certain. My investigations indicate that the germs of the disease exist in the spleen and liver, and it would not be unreasonable to suppose that these organs carried about by dogs or other animals might in certain cases be the means of infecting other pastures. We do not know, however, that this has ever occurred.

The real danger, then, exists in the pastures or other grounds over which Southern cattle, whether sick or well, have traveled, while the sick natives are harmless.

The Southern cattle which convey the infection do not, as a rule, contract the disease, but this rule is not without exceptions. The germs of the disease are within their bodies, probably in their digestive organs, possibly, also, in the liver and spleen, and though when in a vigorous condition they are insusceptible to the influence of these germs, when exhausted by the hardships of travel they frequently succumb to them. There is, consequently, a distinction to be drawn between the sick native animals and those from the South which have sickened; the former do not infect pastures, the latter in all probability do infect them.

We must not expect to find these facts accepted by all who observe this disease, however; on the contrary, they are frequently contested, and nowhere more emphatically than along the border line of the permanently infected district, where the disease is most common, and where it is most important that they should be understood. The experienced sanitarian will not be surprised at this; he knows that the same is true.

with all communicable diseases, and that it is precisely where these are most common that there is the greatest doubt as to the manner of their origin and dissemination. Every unbiased man is ready to admit, for instance, that pleuro-pneumonia never occurs in this country unless it is contracted from a previously sick animal, because the disease was never known here before it was imported from Europe, and because it never occurs now beyond the area obviously infected except by contagion. And yet, when we consult the people of the infected districts, we find that many are emphatic in their assertions that the disease occurs spontaneously as the result of certain conditions of the atmosphere or food, and that it does not arise in all cases from contagion. The reason is very plain. The contagion is so generally disseminated that it is impossible to trace a large number of the cases to their origin, and they are, consequently, accepted as spontaneous. If we go to France, we find a still more general acceptance of the opinion that this disease arises spontaneously, and this is even shared by many members of the veterinary profession. But as the disease is becoming more circumscribed, and as greater efforts are being made to trace the origin of the outbreaks, the profession, at least, is gradually becoming convinced that it only arises by contagion from pre-existing cases.

Along the border line for miles beyond the district permanently infected with Texas fever, every road and common is infected in early spring by the continuous movement of cattle, and it is not surprising that many outbreaks of the disease can never be traced to their source. So, too, in many cases where Southern cattle are carried farther north, an unsuspected road or common is infected, and it long remains an unsolved mystery how the native cattle contracted the disease. Again, people frequently forget that foreign cattle were on their roads and pastures, it may be three to five months before the outbreak of the disease; they are almost as likely to forget that their own cattle have been on certain roads or pastures within three to six weeks; they even forget that they have purchased cattle lately enough to cause the infection, and in all these cases they will assert most positively that their cattle have had no opportunity to contract the plague in the ordinary way, and that, consequently, it has been carried through the air or has originated spontaneously. A careful investigation, however, generally discovers the infected grounds and the cattle which have caused them, and then every one is surprised that that had not been thought of before.

I mention these facts to show the necessity of the greatest caution in accepting explanations of outbreaks as valid which apparently contradict the great mass of facts bearing on this or any other contagious disease.

Turning now to the outbreak in Ohio investigated by Dr. Miller, we find that both lots of cattle were purchased in the Saint Louis stock-yards, and that, at least, one lot was represented to have been purchased in Southwestern Missouri. Lot No. 1 may have been infected when purchased in Saint Louis, or, what is equally probable, it may have been a mixed lot of animals—one or more coming from an infected district, while the others were from farther north and susceptible to the disease. They could not have all been from an infected district, for in that case there would have been no deaths except during the first week after their arrival, when exhausted by the journey. If none were from the infected district, and the infection was contracted from grounds on which they had been yarded during the journey, then the pasture on which they died would not have been infected. There seems to be no data whatever for deciding this point.

In regard to the second lot, the impression conveyed by the report is that they were infected by driving lot No. 1 along the road adjoining their pasture. Considering that the infection has never been positively known to have crossed a fence, I think a more satisfactory explanation is possible under the circumstances. This lot, like the other, being purchased in the Saint Louis stock-yard, was very likely composed of some animals from an infected district, and others which were from uninfected localities and consequently susceptible. Indeed, if all had been susceptible we should have expected that a larger proportion would have contracted the disease. The fact that they did not sicken until after the first cases occurred in the other lot does not bear against this view, since it is a matter of common observation that the disease frequently does not occur until a certain season of the year, no matter how long the pasture has been infected. Thus, cattle taken upon infected pastures in early spring do not as a rule show any symptoms of the disease until August, while those put upon the same pasture in July very often sicken as soon. So that, if each lot had contained one or more animals capable of infecting the pastures, it is not surprising that the disease occurred about the same time in both cases, though one had been upon its pasture a month longer than the other.

In West Virginia the Southern cattle seem to have been divided among a number of farmers, and consequently, there must have been abundant opportunity for the infection of roads, commons, and pastures. While, therefore, the owners of some of the diseased native cattle may have believed that these had not been upon infected grounds, it is altogether probable that, as has happened in so many other cases, either the owner was not cognizant of all the wanderings of his cattle for the preceding three or four weeks, or that grounds which were not suspected had been contaminated by the foreign animals.

I conclude, therefore, that there is not sufficient evidence in either of these cases to show that Texas fever is disseminated in any other way than by means of the infected roads, yards, or pastures; and I insist more particularly upon this point because it furnishes the chief indications for the measures to be adopted in suppressing such outbreaks.

WHAT MEASURES SHOULD BE ADOPTED BY LOCAL AUTHORITIES FOR SUPPRESSING TEXAS FEVER.

When such outbreaks occur as have recently become so frequent in the Northern States, by the introduction of Southern cattle, it at once becomes a matter for serious consideration with the local authorities to decide what regulations should be enforced to protect the neighboring cattle from infection. The extreme virulence of the disease, and the suddenness with which large herds are almost exterminated, makes it seem imperative that some very stringent measures should be adopted at once. The alarm is as unexpected as though a fire had broken out, and the emergency is so unprepared for that not unfrequently the ill-considered regulations enforced result in more real loss to the community than would be caused by the disease itself.

From a consideration of the facts which I have gone over, however, it is very evident that it is unreasonable and unjust to compel the owner of the Southern cattle to do more than keep these animals securely fenced upon the infected pasture until after a killing frost, and to bury beyond the reach of dogs any that may die. Where the infected pasture adjoins a road or neighbor's field, on which there are susceptible animals, it might be advisable, for complete security, to build a second fence

which would keep the dangerous cattle from coming within a rod of such road or field. But to go upon a man's premises and kill his animals, sick or well, and compel him to pay an exorbitant price for the slaughter and burying, as may be done in outbreaks of this disease by the laws of some States, is an outrage for which there is no justification in the characters of the affection.

The Southern cattle may infect pastures and roads, but there is not a particle of satisfactory evidence that they can disseminate the disease in any other way; and after the first really severe frost such grounds are no longer dangerous. If, therefore, these cattle are quarantined upon the infected pasture where they cannot come within a rod of other animals they can do no more harm. The sick native animals do not propagate the disease either directly or by means of pastures; they are consequently harmless, and it is questionable if the authorities should interfere with them, farther than to prevent their sale for food while diseased.

Finally, it must be a very extensive outbreak which will justify restrictions upon the ordinary traffic in the native cattle of any township or county. If a farmer has one infected field, that certainly is no sufficient reason why he should not be allowed to market animals which have not been upon that field since it was infected; and it is even less reason for quarantining his neighbors. It is true that the roads may be infected and that cattle driven over them may be liable to contract the disease, but this is by no means certain, and if the owner chooses to take the risk he evidently has the right to do so, since he alone will suffer. If a road is known to be infected a notice should be posted, in the interest of the public, at the nearest cross-road in each direction, warning people of the danger of driving cattle over it; but the owner of susceptible cattle is in no danger while he keeps them from the grounds upon which those from the South have traveled, and he, consequently, needs no such unusual measures for his protection as is implied in a general quarantine of all bovine animals.

It is plain, however, that the proper remedy is beyond all local regulations; that it should prevent the infection of roads, commons, and pastures, by prohibiting the introduction of cattle from the district permanently infected with Texas fever. This is a matter of infinite importance to the country at large, but it is also one that has been and will be attended with unusual difficulties and that will require the greatest wisdom and experience to perfect its many details. It is doubtful if it can ever be accomplished by the States individually, and it would seem that some way must soon be devised by which the national government can draw a line from the Atlantic to the Rocky Mountains, across which all movement of cattle can be definitely controlled. If we are at present in the absurd predicament that the States are unable to enforce effective legislation because this is interfering with the prerogatives of the nation, and that the latter can do nothing because this would be violating the rights of the States, there certainly can be no good reason, in this practical age and with our present standard of intelligence, why we should not be able to extricate ourselves whenever we are satisfied that this is essential to our interests.

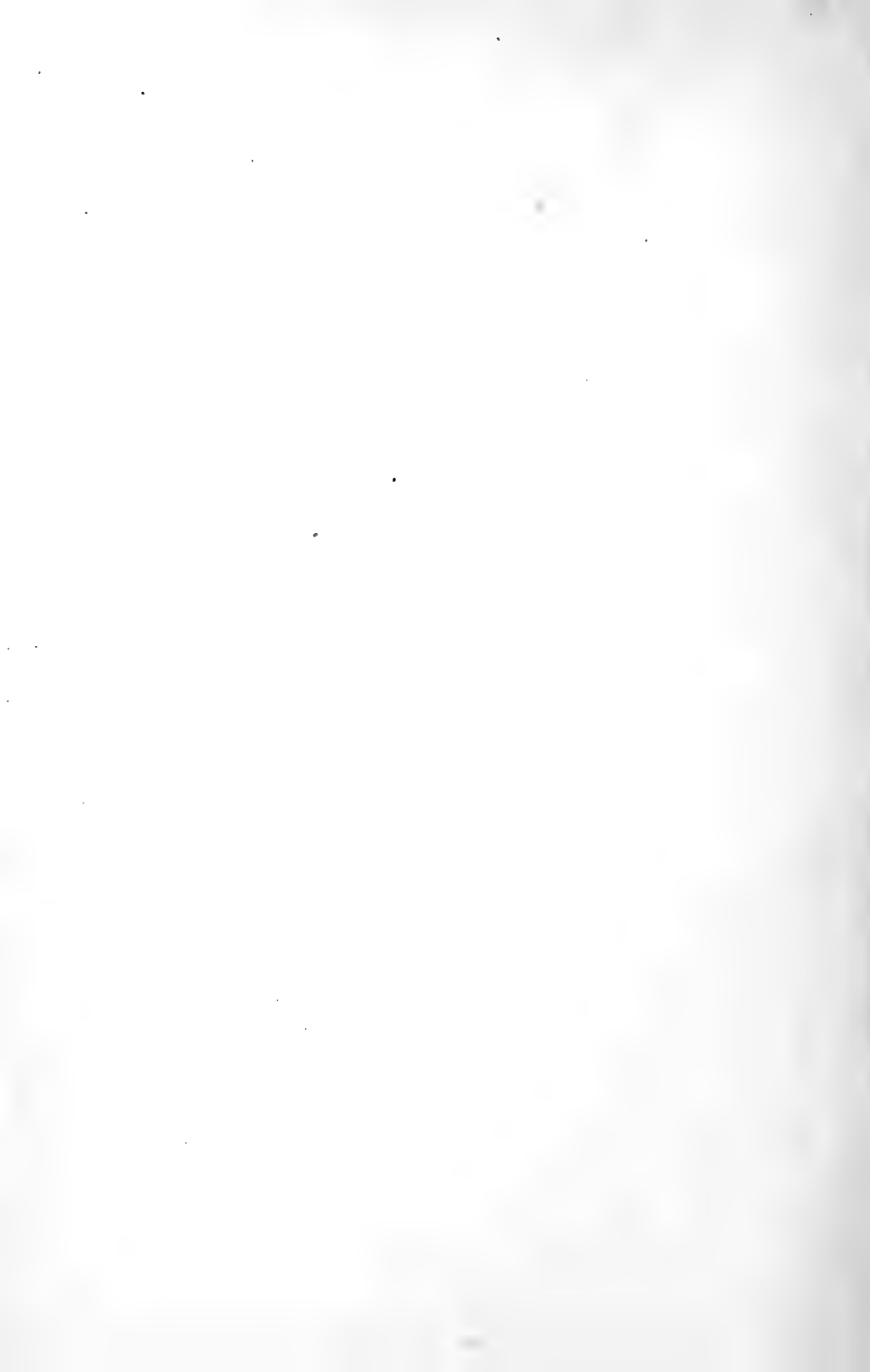
In cases where native cattle are upon infected pastures the *owner* can do something towards checking the progress of the disease among his stock by removing them at once to an uncontaminated field.

Respectfully submitted.

D. E. SALMON, D. V. M.

ASHEVILLE, N. C., Sept. 15, 1882.





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