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SECOND ANNUAL REPORT

OF THE

State Veterinary Surgeon

OF THE

STATE OF IOWA,

FOR THE

YEAR ENDING JUNE 30, 1886.

PRINTED BY ORDER OF THE GENERAL ASSEMBLY.

DES MOINES:
GEO. E. ROBERTS, STATE PRINTER.
1886.

OFFICE OF THE STATE VETERINARY SURGEON, }
AMES, JUNE 30, 1886. }

WILLIAM LARRABEE, *Governor of Iowa:*

Pursuant to Section 4, Chapter 189, Laws of the Twentieth General Assembly, I have the honor to submit my report for the year ending June 30, 1886.

M. STALKER,
State Veterinary Surgeon.

REPORT.

I submit in the following report, a statement of the expenses incurred by the office of State Veterinary Surgeon for the twelve months ending June 30, 1886. The figures show an expenditure apparently in excess of the appropriation provided by law. The Twentieth General Assembly appropriated \$10,000 "for use in 1884 and 1885, and \$3,000 annually thereafter." The natural construction of this clause is that three thousand dollars is intended to defray the expenses of the office for the calendar year, or from January to January. The period covered by the report is from June 30, 1885, to June 30, 1886, thus embracing a portion of two fiscal years. At the time of the passage of the act creating the office, conjecture was about the only guide as to the amount of work to be done, and the expense to be incurred. Five thousand dollars per year proved to be somewhat in excess of the imperative expenses for the first two years. The present indications are that three thousand dollars will not meet the expenses for 1886, unless the demands on the office should materially diminish, and that the work will have to cease by the middle of October, for want of funds to defray expenses. I trust some provision can be made by which the calls can be met from this time to the first of January.

It must be borne in mind that the office is not accomplishing all, nor even a very large part, of the work it should do. There is a very large and important feature of the work that has not been attempted. With the authority and means placed at the disposal of the State Veterinary Surgeon, only certain things were possible to accomplish. That which was impracticable has not been attempted. No attempt has been made to deal with the important subject of swine plague. The meager appropriation would be swallowed up without an impression having been made; the hands of the department would be effectually tied up against the work it would otherwise be possible to perform. I propose to discuss the methods of dealing with this

scourge at another place in this report, and will not continue it here.

We have attempted to meet all calls, where the complaints have been made by the proper officers, of the existence of contagious disease among horses and cattle. An effort has been made to furnish such information to citizens of the State as would be of value to them in dealing with disease, where it was not thought personal inspection would be justifiable. The correspondence of the office has in this way become very extensive, and forms no unimportant part of the work.

Among horses the diseases complained of have been chiefly glanders, Texas itch, catarrhal fever, strangles and other minor ailments. There have been a few outbreaks of anthrax and Texas fever, and possibly, in one or two instances hydrophobia among cattle. In some instances local causes have occasioned sickness in a number of individuals, leading to the belief in the community that an epizootic prevailed. Such occurrences have greatly increased the number of calls on the office, but I believe these complaints have in all cases been made in good faith.

During the present summer no cases of Texas fever have been reported. The restrictions imposed by the State Board of Health on the introduction of southern cattle during the summer months appears to have been followed by sanitary results. I believe not a single summer has passed for a number of years without more or less loss from this source. Pleuro-pneumonia has not made its appearance in the State. Its eradication in several of the neighboring States renders the danger from this source less than it was one year ago. But we are not to consider ourselves in any sense free from danger, so long as any portion of the territory of the United States remains infected, or while there is the remotest probability that it still exists in adjacent States that are supposed to have stamped it out. Quarantine by special executive proclamation has been declared against all States where the disease is known to exist. The quarantine regulations have doubtless been violated in some instances, but I am glad to say there has been a disposition on the part of all good citizens to cheerfully comply with requirements looking to the public welfare, though this was sometimes at the expense of personal convenience. Some friction has occasionally arisen from the necessity of compelling obedience to law, and in one or two instances the workings of the office have been made the subject of severe criticism because I refused to perform private service at State expense.

It will be seen there are two classes of powers placed in the hands of the State Veterinary Surgeon, to be employed in the restriction of contagious disease. One of these refers to quarantine restriction, the other to the appraisement and destruction of diseased animals. The last of these methods is a tedious process, involving much expense and delay. It has, therefore, been decided by the State Board of Health that when quarantine would afford adequate protection to the community it would be better to proceed under this section of law. Glanders is the only form of contagious disease we have yet had to deal with, when the destruction of the diseased animals would seem to be at all necessary. In such cases appraisement would give the owner no relief, as the animal could not be paid for at "more than its actual value in its condition when condemned."

The uniform practice in dealing with this disease, has been to place the animals under quarantine for an indefinite period, when the owner could not be induced to voluntarily destroy them. There has in most instances been a ready compliance: the owner voluntarily destroying the stock and disinfecting the premises. Occasionally some degree of dissatisfaction is expressed, the owner claiming the State should take the stock, dispose of it and reimburse him. Such losses fall heavily on some poor families, but with the present provision of funds for the office, it is impossible to do otherwise. Under this system glanders is gradually disappearing from the State. The number of calls to inspect such cases is gradually diminishing, and the territory in which the disease is found is becoming more circumscribed. I am of the opinion that close attention to the matter for one or two years longer will practically drive the disease from the State.

No general epizootic, except swine plague, has prevailed during the past year. The contagious diseases that have made their appearance, have been confined to localities where they developed, and no serious loss, except in individual cases, can be said to have occurred.

In this report will be found a number of short articles relating to the more common forms of contagious disease to which our domestic animals are subject. Some of these I have prepared especially for this report, while others have appeared in part, or entirely, in a former report, or in some of the periodicals. I find the reproduction of some of the articles a necessity, from the fact the edition of the last report is nearly exhausted, and it is absolutely necessary to

keep on hand for distribution printed matter containing the information they embody.

SWINE PLAGUE.

Swine plague, or what is more familiarly known as hog cholera, probably occasions more loss directly, to the stock-growing interest of the State, than all the other diseases combined. It is at once one of the most actively contagious diseases, as well as one of the most highly fatal, affecting domestic animals. The theory that the disease is not contagious, but due to unhealthful food and neglect of sanitary conditions, is no longer entertained by any investigator whose work in any sense entitles him to be regarded as authority. A diet of corn in a den of filth can no more generate a case of swine plague than similar surroundings and unwholesome food will develop small pox in man. It is a specific type of disease. It comes from its own kind, and produces its own kind. Sections of the State are to-day free from the disease where a few years ago it raged with such violence that the production of pork almost ceased for a time. Other counties that were free from the disease at that time have had a large part of the pork crop swept away for two or three years in succession. Yet the conditions under which the animals are kept in these different sections have not changed in any essential feature during these years. We must seek elsewhere than in dietetic and sanitary causes for an explanation of these facts. One attack of the disease confers immunity against a second attack. In the course of time nearly all the animals in localities where the disease has been active have either died, or recovered from its effects. The disease disappears for want of susceptible material to work on. The poison is carried into regions that have hitherto escaped, and thus the whole country is ravaged. The method of communication is not always obvious, but the instances are so numerous in which the disease has been reproduced by accidental exposure and by experiments, that the inference can not be avoided that contagion is the cause of its spread over the country.

This knowledge is worth something, but it does not afford any present pecuniary relief to the farmer. It is worth a great deal, however, as furnishing a known base of operation. It is of material importance in dealing with the disease, to know whether it may develop spontaneously at a hundred points in the State, or whether there must be some method of communicating the infecting material

to the unprotected animals. If its development is spontaneous, then we have little hope of ever freeing the country of the scourge. Plans for eradicating the disease would be useless, as there would be no guarantee against fresh outbreaks at any time. There is little hope from therapeutic agents. Hog cholera cures, may be excellent commodities to sell, but so far as my experience and observation go, they are a poor class of property to buy. It is my opinion that the money sunk in these nostrums would buy more pork in the market than it saves in the pen. A legislative body could hardly be gotten together at this time that would feel they had done all that was necessary to satisfy an agricultural constituency, when an appropriation had been voted to pay for a hog cholera specific *when found*. Nothing could be more absurd, or promise less of value to the public. As with the highly fatal epidemics, safety rests not in specific cures, but in proper methods of prevention. Legislative interference can be interposed with most important results if properly directed. But this must look to stamping out the disease, not to curing the sick animals. If proper, uniform legislation could be had in the several States, or what would be much better, similar legislation by the National Congress, the disease could be eradicated in this country at a cost of twenty-five per cent of the loss for one year. This could only be done by visiting every infected community so soon as the disease made its appearance, and at once destroying all infected swine, thoroughly disinfecting the premises and imposing such quarantine restrictions as would insure arrest of further infection. Railroad cars, and all other conveyances used for the transportation of swine should never be allowed to be moved from the station to which consignment was made, until they had been thoroughly disinfected. There would be much of detail in carrying into effect such a system, but nothing that is impracticable. So far as known, this is the only system that has in it a reasonable hope of success.

Other discoveries may yet be made that will throw additional light on this question, but as yet they exist only in theory.

Pasteur's system of inoculation as a preventive measure, has certainly much of interest if not of actual promise in connection with the solution of this problem. His experiments with *rouget*, a disease for many years supposed in France, to be identical with swine plague of the United States, have been so successful as to justify much hope from kindred experiments in this country. Already Dr. Salmon, of

the United States Bureau of Animal Industry, has done some valuable work in this direction, but much remains to be done before inoculation can be accepted as a safe and certain method of restricting the spread of the disease.

In the meantime the farmer is left to rely chiefly on his own resources for defense. His safety for the most part rests in the exercise of the greatest possible care as to exposure. The introduction of the disease on the farm is not unfrequently caused by carelessness, though quite as often it has been through means that have escaped detection. In times of danger the careless and indiscriminate visiting of pens, some of which contain diseased, and others healthy animals, is to be guarded against. This is not unfrequently one means by which the disease is distributed from farm to farm. Hog buyers who go from farm to farm frequently are the carriers of the germs that spread the disease. Too much care can not be exercised in protecting the stock against this and like methods of exposure.

At the very first appearance of the disease, the affected animals should be killed and burned, or deeply buried, and the remainder of the herd removed to fresh feeding ground. Unless this precaution is taken very promptly, little good is likely to result from it, as the infection will have extended to those that as yet show no signs of disease.

The degree of vitality possessed by the germs has not been definitely tested in every respect. It has been demonstrated that exposure to moderate heat, say 150 degrees, or even lower, for a few minutes, renders the germ incapable of reproduction. It will thus be seen that heat is one of most effectual disinfecting agents. The destruction by fire of all litter in pens where the disease has existed should never be neglected where it is practicable. A coating of straw or hay, a few inches in depth, should be spread over the dry feeding grounds and burned. This, in addition to destroying all trash that might furnish a lodgement for the germs, will heat the surface of the ground sufficiently to render disinfection certain. Floors may be thickly covered with freshly slacked lime, scalded with boiling water or saturated with a solution of carbolic acid. Drying and freezing have a less marked effect than a high temperature. Neither of these agencies is to be relied on as a means of disinfection, unless the premises can be kept free from swine for a year or two.

Much has been said in relation to the danger from traffic in the

carcasses, as a means of spreading the disease. Widely different views are entertained on this subject. It is a well demonstrated fact that the tissues of animals recently dead from swine plague, will when fed to healthy animals, produce the disease in a virulent form. Just how long the germs continue to retain their vitality in the carcass is not clearly demonstrated. Many occurrences have been noted that have led observers to believe there was little or no danger in the indiscriminate handling of the carcasses, so far as propagating the disease is concerned. I have myself seen large numbers of these carcasses hauled to rendering establishments and thrown out in great heaps, where healthy swine had unrestricted access to them for weeks, without a case of cholera being developed. Whether the non-infection in such cases was due to the destruction of the virus, as a result of decomposition in the carcass, or to the fact that the exposed animals may have been rendered insusceptible from a former attack, or to some other undetermined cause, I cannot say. It is true, however, that isolated cases of this kind will not suffice as a basis of action in dealing with this disease. All products of such animals are to be regarded as sources of danger, until subjected to such processes as will insure disinfection.

GLANDERS.

There are many causes which contribute to the wide distribution of this disease. First, the period of incubation, or the time from exposure till the disease begins to develop, is quite variable. The poison frequently remains in the system for months, where there is no external evidence of the disease. Again, the early symptoms are so trivial in many horses of good constitution, especially where proper attention is given to sanitary conditions, that they are passed over with little or no thought. It is not an unusual occurrence for horses having the pure air and nutritious grass of the farm to be affected with this disease one or more years and show scarcely any evidence of debility. To one unaccustomed to dealing with the disease, these slight and seemingly unimportant evidences are anything but suggestive of the fatal ravages usually ascribed to glanders. But it must be borne in mind that the specific poison may be conveyed to healthy animals, from those suffering from this benign form. The discharge from the nasal passages, which is one of the characteristic signs, may be easily arrested for a time by the judicious use of astringents. If the animal has not become debilitated, it is an easy

matter to palm off such a prepared subject as a sound horse. This fact is turned to account by unprincipled jockeys and professional traders, who procure these brutes for little or nothing, patch them up, send them off to other localities, and sell them at "a great bargain" to the uninitiated. I think I may say with perfect safety that in three-fourths of all the cases of glanders met with in my experience during the past year, a *trade* was an important part of the history. These facts, together with the additional one, that horses are taken from their homes and traveled about the country more than any other class of live stock, watered at public troughs, and fed where hundreds of other horses have eaten, will furnish some explanation why the disease has become so wide-spread.

Glanders is fatal; with a uniformity scarcely known to any other disease. Though an animal may live for years with the poison in the system, yet the complication of some other disease, simple within itself, may develop a type of glanders so virulent as to run on to a fatal issue in a few days. Old age, exposure, starvation and overwork all tend to a rapid development of the disease.

There are widely different views entertained by educated men as to the cause of glanders. The weight of testimony brought out by writers on veterinary subjects would seem to point to a spontaneous origin. That is to say, that protracted cases of debilitating disease may eventually develop into glanders, though the patient had not been exposed to glanders poison. For my own part I have never seen a case that I thought could not be accounted for by other causes than spontaneity. In nearly every instance where these cases have come under my observation, I have been able to trace the cause to preexisting cases, just as we trace the history of an outbreak of measles or small-pox. It is certain that contagion is the chief, if not the only, cause of glanders in this country. Man and animals of the equine species are the most susceptible subjects. Mules and donkeys are more subject to the acute type than horses; the disease not unfrequently proving fatal in three or four weeks. Equine animals contract the disease both by infection and inoculation, while man probably never contracts the disease except through the medium of inoculation.

There are two distinct and clearly recognizable types of the disease, namely: glanders and farcy. A typical case of glanders is readily diagnosed by the following symptoms: An adhesive discharge from one or both nostrils, small, pit-like ulcers on the mem-

brane lining the nasal passage, which often run together, and give rise to raw surfaces of considerable extent. The membrane is of a dull lead color, with occasional yellow streaks. In advanced cases, the ulcers penetrate the cartilages and bones, and lead to extensive destruction of these tissues. There are hard nodular swellings between the lower jaws, not round and soft like those accompanying distemper, but deep seated, almost immovable, and having no tendency to form pus. But it is only an occasional case that shows all these symptoms in a typical way till the disease is far advanced. There are many other causes that so nearly duplicate these symptoms that it is impossible for any one but an expert to determine the difference. In fact, there are many cases that will defy the skill of the most experienced. Either the patient must be given sufficient time to definitely develop the disease, or another animal must be inoculated with some of the supposed virus, to test its activity. Diseased teeth, catarrh, the results of protracted cases of strangles, and many other causes, often produce symptoms bearing a close similarity to those I have just mentioned, and quite as alarming in general appearance.

Farcy is a mild form of the disease, which manifests itself by hard swellings on various parts of the body, varying in size from the bulk of a hazlenut to that of a walnut. These swellings are most likely to be seen on the inner side of the thighs, on the fore limbs near the body, and on the neck or rump, but may appear on almost any part. These swellings have a tendency to form and discharge a thick pus, after which the swelling disappears, and only a slight scar remains. This condition may continue for years, with but slight alteration of general health. In time the disease is likely to attack the membranes lining the nasal cavities, or other parts of the air passages, and the animal dies from glanders.

It must be borne in mind that glanders and farcy originate from the same poison: in fact, that they are one and the same disease, simply showing different manifestations in different individuals. The virus from a case of farcy is quite as likely to produce a case of glanders as one of its own type, and *vice versa*. Mild cases of farcy, affecting animals of good constitution, will occasionally yield to treatment. But the danger is so great in proportion to the probabilities of benefit from treatment that I cannot recommend it. So soon as it can be definitely determined that a horse is affected with glanders or farcy, he should be destroyed and the carcass buried not less than

four feet in the ground. The premises where such animals have been kept should be thoroughly disinfected before any other horse stock is placed upon them. It is not necessary to burn fences, and buildings having any value, but where those consist of a temporary straw sheds, or similar protections, this is the best method of disposing of them. Wood-work or brick walls may be cleansed by scraping and then applying a thick coating of fresh lime whitewash. Thorough washing with a strong solution of concentrated lye, carbolic acid, or sulphate of copper, will also destroy the virus. The free application of boiling water is a cheap and convenient method of disinfection. Harness and other articles made from leather may be cleansed by immersion in oil as hot as the material will bear. All articles, as brushes, combs, blankets, etc., that have been used about a glandered patient, should be thoroughly cleansed, if they are to be afterward used on healthy animals. Wagon-tongues, neck-yokes, hitching-posts and all other objects with which the diseased animal has come in contact, should be similarly treated.

The property interests alone involved, are quite sufficient to demand the strictest precaution against the spread of glanders. But there are other and stronger reasons why such precaution should be taken. The disease is communicable to man, and possesses for him the same fatality as for the horse. It is nearly always communicated to man, from the horse. This usually takes place from ignorance of the true nature of the disease, and consequent careless handling.

So far as I can learn there have been no authenticated cases of this character, in the State during the past year. Prior to this, a number of cases had occurred. I always make it a point to call attention to this fact and warn those in charge of diseased, or suspected stock. The fact that glanders is communicable to man, seems not to have been generally understood by the public. I am of the opinion that these warnings have averted much trouble and suffering.

ANTHRAX.

This disease manifests itself under a variety of forms, and all species of domestic animals are liable to be affected. In this State, cattle are by far the most frequent sufferers. Other animals rarely suffer, except when they have eaten from the carcass of an anthrax subject, or been inoculated with the virus. Young and rapidly thriving animals are most likely to be attacked. The disease as a rule

proves rapidly fatal, but only in rare instances extends to any considerable number of a large herd. The form of the disease most frequently seen in this State, is that known as black leg, or black quarter. Most cattle men have had more or less experience with the disease. There are many remedies that have gained local, or more extended popularity, from the belief that they possessed unfailing virtues in the treatment of this disease. None of these would probably stand the test of a careful experiment. For the past few years most painstaking experimentation has been in progress in France, conducted with a view to discovering methods by which inoculation could be employed as a protective measure. The most complete success seems to have rewarded this research. In that country domestic animals are now protected against anthrax by inoculation, with more positive results than human beings are protected against small-pox by a similar process.

As yet, no such satisfactory results have been produced in this country. Empirics and charlatans have taken advantage of the vague and imperfect knowledge of these facts to impose on the credulity of the public, and defraud the farmer. Some of these characters have been through the country representing themselves as the great exponent of these modern ideas, and claiming to be in possession of all the knowledge pertaining to this branch of sanitary science. In many instances farmers have been swindled out of snug sums of money, under the representation that their animals could be protected against disease by inoculating them with some vile nostrum.

It seems almost needless to say that farmers do worse than throw their money away when they use it in following the directions of such men.

By proper care and attention much may be done to prevent the spread of the disease and to mitigate its virulence. All healthy animals should be removed to pastures where there has been no disease, and, if possible, to high ground. It is not necessary that the grass should be very abundant, but it should be, so far as possible, free from the succulent, sour vegetation of damp, cold land. It is highly important that a full supply of pure water should be furnished. Give salt daily, and add to this for each animal, one-half ounce hyposulphite of soda, and one drachm chlorate of potash. If any animal is observed when first attacked, give one and one-half pounds Epsom salts; this should be followed by one drachm nitro-muriatic acid, and add twenty grains of quinine every two hours, till the symptoms

change. Moderately active exercise is believed to be followed by beneficial results. There are those who believe that chasing the diseased animal will produce a cure in a large majority of instances. I do not speak on this point from either experience or observation, but give the opinion of some very successful farmers.

Carcasses should be deeply buried, or, what is better, burned, together with all blood, excrement and litter where the animal has lain. The skins should never be removed, as they are likely to communicate the disease by shipment. Care should be taken by attendants to prevent the introduction of the virus into sores or abrasion, through blood, or any of the secretions. Careful attention to these precautions will soon arrest the progress of the disease, but neglect may work serious loss to the cattle interests of the neighborhood.

TEXAS FEVER.

Texas, or splenic fever, is a specific, febrile disease, affecting in the Northern States, cattle only, so far as I am able to learn.

It exists in a latent form in nearly all cattle reared in the low, malarial regions in the extreme southern portions of the United States. Though affecting but slightly, if at all, the growth and general health of these animals, they readily communicate the disease in a highly fatal form to northern cattle when placed at pasture with them.

CONTAGION.

The reproductive elements of the disease seem to be contained in the bowels and kidney discharges.

Northern cattle can stand in the same stable, or travel in the same car with Cherokee or Texas cattle, without appreciable danger. But when allowed to graze on pastures where these Southern cattle have been feeding or have been driven over, they readily contract the disease. Low temperature readily destroys the germs, so that after one or two hard frosts, infected pastures are rendered safe for the admission of healthy stock. After Southern cattle have remained north during the winter months, they are rendered innocuous. The virus apparently loses its vitality with a single transmission; for Northern animals that have contracted the disease in ever so virulent a form, will not in turn transmit it to others. The period of incubation varies greatly in different cases. Fifty-two days is the average time in the outbreaks I have investigated. Cases are recorded in

which the disease has developed in two weeks or less from the time of exposure.

SYMPTOMS.

Marked elevation of temperature, reaching in one case I examined 107.5, pulsation from 100 to 135, respiration 80 to 100, dullness and stupor; the animal isolating himself from the rest of the herd, and standing with his back arched as if suffering from cold. In the early stages the surface of the body and horns are cold. This symptom alternates with rushes of fever. Ears pendent, and the nose resting almost on the ground. Slight cough accompanied with some frothy discharge from the nose, difficult locomotion, accompanied in some instances with partial paralysis of the posterior limbs, involuntary twichings of the muscles over the shoulders and hindquarters, constipation, bowel and kidney dejections tinged with blood. On the thin portions of the skin drops of blood exude and become hard and firmly adherent. The hair looks dry and unhealthy, and there is pain on pressure over the region of the heart, and in some cases over the loins. The eyes are intolerant of light, become milky in color, and in some instances total blindness ensues. In some cases death is preceded by profound coma, or stupor, in others the animal becomes frenzied and rushes frantically about. In nearly all cases there is depraved appetite, the animal showing strong inclination to eat dirt, small stones and refuse matter. The average duration of the disease is three or four days. In a few instances animals die in an hour or two after they are known to be sick. Others live six or seven days after the attack. In the cases that recover, the aggravated symptoms begin to disappear in the course of four or five days, and the animals gradually regain health.

POST MORTEM APPEARANCE.

In a few moments after death the carcass becomes firmly rigid. If the animal be destroyed by cutting the large vessels of the neck, there is a free discharge of watery-like blood from both veins and arteries. The pale, watery condition of the blood is one of the most noticeable pathological conditions. There is usually a little swelling of the tissues in the inter-maxillary space, and occasional little vesicles filled with blood, immediately beneath the skin. With the exception of these slight alterations, the carcass when the skin is

removed presents the appearance of a healthy beef. The spleen is enormously enlarged; the weight varying from five to five and one half pounds, when the normal weight would not exceed two. Its tissues are engorged with dark colored blood, and the whole organ appears to be undergoing decomposition. The liver is about double its normal weight, in one case I examined, weighing twenty-six pounds. Its tissues are reddish in color, with a tinge of yellow. The bile sack is enormously distended with a black mass, of the consistency of thin mortar, and the bladder contains six or seven pounds of wine-colored liquid. The fourth stomach and the entire intestinal track are the seat of occasional congested spots, and erosions of the mucous membrane. Considerable quantities of watery infiltration are found in the brain cavity, and the brain substance is congested and much darkened in color. The surface of the heart, both external and internal, shows dark congested spots, and smaller discolored specks are occasionally seen on the peritoneum, and especially that portion investing the uterus.

PRECAUTION.

But little good can be accomplished by treating the sick animals, but very much can be done to prevent the spread of the disease if proper precaution be had. In every instance all native cattle should be removed from pastures where the infected herds have ranged, and should be kept off until frost. All cattle capable of communicating the disease should be quarantined at once, on the land they have been occupying, until the frosts of winter render them harmless to native stock. We have a law that is adequate for the protection of the cattle interests of the State against this disease, if the necessary information is given in time. I believe no cases have occurred in the State during the present season.

ENZOOTIC OPHTHALMIA.

This is a disease affecting the eyes of cattle. When it makes its appearance in a herd a large proportion of the individuals suffer. The symptoms are cloudiness of the eye, intolerance of light, constant weeping, and frequently more or less general constitutional disturbance. A tumor-like swelling often protrudes from the front part of the eye, causing temporary and sometimes permanent blindness. The disease rapidly spreads from one animal to another, until in some in-

stances nearly every individual in the herd may be seen making an effort to protect the eyes in some shady spot, or groping their way about the fields. In the course of a week or ten days from the attack, all but the more severe cases will have made recovery, usually without injured vision. If the attack is a severe one the animal should receive treatment. This consists in placing him in a dark stable and keeping the eyes constantly fomented. A mild astringent wash should be used when the eye is badly affected. A drachm each of sulphate of zinc and carbolic acid in one quart of water will form a suitable wash. The eyes should be bathed with this as often as possible. The disease is contagious, and precaution should be taken to prevent its spreading to other herds.

ERGOTISM.

The public has heard so much of this for the last year and a half, that any further mention of this subject would seem to be superfluous. Most of this discussion grew out of the diseased condition of a few herds of cattle in southern Kansas during the early spring of 1884. As the real nature of the disease was still in dispute at the time of my appointment to the office of State Veterinary Surgeon, a brief allusion to it may not be out of place. The latter part of December, 1883, and the early part of January, 1884, a disease made its appearance among the cattle on a few farms in the vicinity of Neosho Falls and other portions of Kansas. The disease occasioned general alarm, and finally the attention of the general government was called to the subject. Experts in the employ of the U. S. Government were sent to Kansas to make investigations. The affection was pronounced contagious aphtha, or foot or mouth disease. When this opinion was given to the public a state of general alarm prevailed, and the newspapers for a time were flooded with literature on this subject. At the Governor's suggestion the General Assembly, which was at that time in session, passed a joint resolution, instructing me to go to Kansas and investigate the disease for the benefit of the live stock interest of our State. I did so, and developed the fact that the disease was not contagious aphtha, but was due solely to a local cause. The cattle had been fed on hay that contained an unusual amount of ergot. The disorder manifested itself almost uniformly by its effects on the hind feet of the animals. In some instances this consisted of a slight sloughing, but in many cases the entire loss of one or both hind feet was the result. The limb would be circumscribed at any point below

the hock joint by an indented ring. Below this ring the tissues became dead. A huge fissure or crack would define the limit between the dead and the living parts, and finally the limb would drop off at this point. Amputation was thus performed without loss of blood, and frequently with but slight formation of pus. This is called dry gangrene of the extremities, and is explained by the peculiar effects of the ergot poison.

The protracted use of ergot has the effect of lowering the powers of circulation. This goes on to the extent of entirely arresting circulation in certain parts of the body. This will always occur, first in the extremity where circulation is carried on with the least force. The parts in which circulation is arrested will very soon die, and the peculiar sloughing is the result. The hind feet, and less frequently the front feet and the tip of the tail are the parts that usually suffer in this way. There are all degrees of severity, from a slight abrasion of the skin, to the loss of a toe or the entire foot. I had seen the effects of ergot in our own State before going to Kansas, and have seen a number of cases since. I had no difficulty in tracing this outbreak to its true cause. This theory of the case was received with a great deal of skepticism by the owners of stock, and especially by the experts making the first investigation. The stock men of our own State were fearful for some time that this easy explanation would not be found to hold good. I do not know that any one now attempts to deny the correctness of this view. I have seen the disease subside voluntarily, under change of diet often enough to clearly demonstrate the fact that there is no element of contagion in it.

The remedy would suggest itself. Discontinue the use of hay that contains ergot, and give strong nourishing diet. On one farm where I found the worst samples of ergotized hay I saw in Kansas, a liberal supply of corn had also been given. This so modified the depressing effects of the ergot that the cases were but few, and trivial in comparison with those seen in similar herds where hay alone was fed.

Other forms of the disease result from over-doses of ergot. Abortion sometimes follows, and frequently violent convulsions.

"TEXAS ITCH."

This disease is a virulent and highly contagious form of scabies or mange, which is brought into the State from the South and Southwest. So far as I have been able to learn, it has not prevailed to any considerable extent during the past year.

SYMPTOMS.

The earliest symptoms usually noticed is the appearance of wet spots on the body of the animal. Examination shows that an exudate is thrown out from the skin about these spots, thoroughly saturating the hair. This exudate, which at first has a watery appearance, becomes more pus-like, causing the hair to adhere in little tufts. There is evidently intense local fever; the steam will rise from the bodies of the animals as though they had been hard driven on a cold day. Vesicles soon form in the skin, filled with a watery liquid, which in a few days assumes more the character of pus. The hair soon begins to come away, and the disease spreads over the entire animal, almost denuding him, and leaving the body covered with firm scabs or raw and festering sores. During all this time there is the most intense itching. The animal continues to rub itself against any fixed object that may be in its way with almost frantic violence. A more pitiable or loathsome spectacle is difficult to conceive than an animal in the advanced stages of this disease. If neglected, they become emaciated and die from nervous exhaustion, the result of constant and painful irritation.

NATURE OF THE DISEASE.

It is a parasitic skin disease—an aggravated form of mange, known as "Texas Itch." The altered conditions of food and climate render it more intractable here than in its Southern home, but it is apparently less violent on our native horses than on those from the Southern countries.

TREATMENT.

In order to eradicate the disease, all affected animals should be kept carefully secluded from other stock. If this precaution is not observed there is likely to be an indefinite continuation of the trouble. The remedies are chiefly local, consisting of the application of more or less active agents to the parts affected.

Before any remedy is applied looking to the curing of the disease, the animal should be thoroughly prepared for the application of the medicine. This preparation will consist of a thorough cleansing of the entire body by a copious application of soap and water, and the vigorous application of a stiff brush. After this work has been thoroughly done and the animal carefully dried off, the remedies proper are to be applied to every portion of the body showing the least signs of disease. There are many agents that may be employed, any one of which will prove successful if judiciously applied. Whatever remedy is used it is to be applied to the skin in such manner as will insure contact with the diseased surface.

I present several prescriptions from which a selection may be made. 1st. Sulphur and fish oil, equal parts. 2d. Sulphur, two parts, lard, two parts, oil of turpentine, one part. 3d. Carbolic acid, one part, water, twenty-four parts. 4th. Kerosene, one part, lard, four parts. 5th. Oil of tar, one part, fish oil, ten parts. Corrosive sublimate may be used in the proportion of

three or four grains to the ounce of water, if the animal is kept muzzled or otherwise prevented from licking himself.

The preparatory washing is only admissible when the weather is mild, or the animal can be comfortably housed and warmly clothed to prevent taking cold. Unfavorable results are not so likely to follow the application of cold water as warm, unless the patient is in very comfortable quarters. Any of the above remedies will have to be reapplied at intervals of a few days, until every evidence of the presence of the disease is removed. After this the skin should be kept dressed with lard, or some bland preparation to protect the surface and promote the growth of hair.

It must be borne in mind that the stables, bedding, fences, hitching posts and other objects serve as lodging places for the parasites, and unless the premises are thoroughly disinfected a recurrence of the disease may be expected. This may be done by washing the wood work with hot lye, or by a thorough coat of whitewash. Bedding should be burned and floors treated to a thorough dressing of lime. All clothing should be boiled, and harness dipped in hot oil.

VERMINOUS BRONCHITIS

Is due to the presence of parasites in the bronchi and minute air vessels. The parasites are minute round worms. Each species of our domesticated animals has one or more species of these parasites. Once introduced into the lungs they propagate with great rapidity and often destroy the life of the animal in a few days. Large numbers of the eggs, or even the adult worms may be coughed up, and the resulting young brood or unhatched eggs retain their vitality for a very long time. The eggs have been artificially hatched after being kept for several years. The young worms will cling to vegetation, live in ponds of water or moist earth, while the eggs may be blown about as an impalpable dust. When any of these find their way to the lungs of a susceptible animal, a rapidly increasing colony is at once formed, and in this way the disease assumes the proportion of an epizootic. The method of reproduction, and the general effects are the same in the different domestic animals. "Gaps" in chickens is due to a closely related parasite. The following description of symptoms is quoted from one of the letters I have received :

The first symptom is a slight cough, which increases in severity, seemingly causing much pain. The animal seems to try to stifle the cough, making it generally more of a hoot. Quick and difficult breathing, drawing in of the flanks, a sudden falling of flesh in severe cases, and almost entire loss of appetite. Some drink milk as long as they can stand up, standing quiet most of the time, with front legs apart, head drooping and an unnatural flow of frothy saliva. Some linger fifteen or twenty days after the at-

tack, while others last but ten. The lean ones appear to linger the longest. The symptoms are clearly stated, and the presence of the worms complete the evidence necessary for diagnosis.

The species I have examined is the *strongylus micrurus*. The adult female is nearly three inches in length, the males attaining only about half of that measurement; the diameter being that of a fine thread. While this disease is by no means so alarming as pleuro-pneumonia, it is nevertheless sufficiently destructive to call for prompt and energetic treatment. Two results are to be sought—first, the destruction of the parasites, actually causing disease; and, second, the destruction of eggs and young worms that have found a lodgement where they will likely be taken in by the cattle. Fumigation offers the greater certainty of destroying worms lodged in the lungs. Sulphurous acid fumes and chlorine gas are the most reliable agents to employ. The former can be produced by burning sulphur, and the latter by thoroughly mixing equal parts of salt and black oxide of manganese and treating the mixture with sulphuric acid; using equal weights of the mixture and acid. The animals should be confined in a small, close stable and the gas should be produced in sufficient quantity to charge the atmosphere in the building. Care should be taken that the gas is not evolved so rapidly as to cause suffocation. The treatment should be kept up for half an hour, and should be repeated every day or two for a week or longer. The building where the animals are confined should be as free from manure and decomposed matter as possible, especially when chlorine is used, as highly irritating gases are formed by these compounds. Pens, troughs, bedding, etc., should be thoroughly disinfected. Bedding that is liable to be contaminated should be burned and the pens whitewashed or otherwise purified. Oil of turpentine given internally, or kept where the animals will constantly inhale the fumes, is one of the most effectual remedies. The further treatment of the diseased animals will consist in overcoming the exhaustion and emaciation resulting from the disease. This last is best done by giving liberal supply of food of the best quality. Such tonics as sulphate of iron, in doses of one half drachm, or cinchonia or gentian in drachm doses, may be given twice a day to calves a few months old. The lungs of animals that have died from the disease should be burned. Keep healthy animals away from those diseased, and exercise care in regard to allowing young calves to feed on pastures where diseased stock have been. Older animals are least affected by the parasites, but animals of any age may be destroyed by them.

PLEURO-PNEUMONIA.

Iowa has so far escaped this, the worst of all calamities to the cattle interest. This is more by accident than timely precaution. The neighboring States of Illinois and Missouri, without more apparent exposure, have both received the plague within their borders. But one herd in the State—that belonging to General Smith, near New Sharon—has been exposed to the disease, so far as I know. The

time has long since passed when it would be possible for the disease to develop from this exposure. It remains for this State to prevent the introduction of the disease, in order to remain free from it. This will be a work involving no small amount of care and vigilance. The executive proclamation, and the rules for its enforcement, if strictly carried out, would furnish as much security as we could expect from local effort, while the disease is in close proximity to two sides of us. This system can prove effectual only for a time. The efforts of individual States will never eradicate the disease. A vigorous policy must be inaugurated by the general government. A commission should be appointed, with almost unlimited power, and provided with abundant means to prosecute the work of complete and final extirpation of the disease. Any other policy can do little more than retard the general encroachment of the disease, till finally the conditions in South Africa and Australia will be repeated in all the western territories. While the disease is not indigenous to this country, it is idle folly to depend on starvation and a temperature of forty degrees below zero for protection of the western plains against its insidious march.

Every good citizen should feel that he is especially commissioned to render the State any service in his power in preventing the introduction of the disease. If it is known that cattle have been shipped into Iowa from any of the States quarantined against, without proper certificates of health, notice should at once be given to this office.

It is quite impossible for any one not familiar with the disease to determine between the symptoms of pleuro-pneumonia, tuberculosis, and other chronic lung affections. But all cattle suffering from protracted cough, and other evidences of lung disease, should be inspected.

RABIES.

The danger from the bite of rabid animals is too well understood to require any comments. As to the treatment, or prevention of the development of the disease after an individual is bitten, the public is not so well agreed. It is a well-known fact to the members of every branch of the medical profession, that the results are almost uniformly fatal, when once the virus has been absorbed into the system. Dr. Fleming, one of the best informed men in the world, on this subject says: "It may be asserted in general terms that nothing

yet proposed has ever succeeded in arresting the fatal progress of this fearful complaint. Every known remedy has been tried, and all have failed. In the early and middle ages, magic, invocation, exorcism, appeals to supernatural powers, and charlatanism of the grossest character, had to give way to the terrible fatality of the disease."

Dr. Reynolds says: "From the fact that so few of those bitten by rabid animals actually contract hydrophobia, we should expect that a large number of specifics would have been proposed for its treatment. A credulous physician who happened to have administered some remedy to a few persons bitten by a mad dog, finding that no evil consequences followed, and forgetting that had nothing been administered, his patient would in all probability have enjoyed equal immunity, was only too ready to believe that he had at least discovered a specific for so terrible a disease."

The only safety for the individual bitten by a rabid animal is in the hope that none of the saliva has found its way into the wound, or in the adoption of such measures as will prevent the poison from entering the circulation. Any measure looking to this end should be promptly employed. A very few minutes or seconds even may be sufficient for the poison to enter the circulation, and then all local treatment would be unavailing. If such cases were properly treated at once, the danger would, to a very great degree, be averted. This may be done by suction, by excising the edges of the wound, by the application of strong caustics or a hot iron, or by copious washing. If powerful suction be applied by means of the mouth, the patient taking pains to spit out all blood drawn from the wound, the danger is but slight. Profuse washing is to be highly recommended. This will promote the flow of blood and carry off the saliva in which the poison is contained. The application of caustics or hot iron is one of the most effective remedies, if the application can be made with sufficient promptness. The application of caustic should never be neglected after employing suction, or washing. This should be adopted at the earliest possible moment.

I have received a fair share of criticism for warning the public against the popular superstition on the subject of "mad-stones." No one would be more gratified than myself to know there was in existence a means so efficacious as the virtues imputed to the mad-stone. But I would fall far short of my duty to the public if I were not to caution them against the employment of means in favor of

which there is not a scrap of trustworthy evidence, to the exclusion of those measures that might be of infinite service. Men who have devoted a long lifetime with the most painstaking research to the study of this subject, with every facility that science can give, know nothing of the virtues of mad-stones. Geologists and minerologists have never been able to find one. They are unknown therapeutical agents to the world of educated medical men. They can be heard of in obscure rural districts, the haunts of an occasional stray witch, the "last of a once powerful race." In a word this is but one of a long list of imaginary remedies that have found favor from the earliest historic time in the minds of the credulous.

TUBERCULOSIS.

There are many cases of this disease, especially among high-bred cattle and those that have been subject to high forcing processes. In-and-in breeding has had much to do with perpetuating, if not engendering the disease. The practices which prevailed a few years ago, and which have not been totally abandoned yet, in preparing animals for public sales, has done much to promote the increase of tubercular consumption. Cattle were kept for months in close stalls thickly wrapped in heavy blankets, and forced with stimulating food to the utmost capacity of the digestive apparatus. These cattle frequently fell into the hands of men who furnished them no more adequate protection against snow and sleet than is offered by the side of corn crib or a barbed wire fence. The natural result is that many such animals contracted cold which terminated in consumption. These animals gave rise to an enfeebled line of offspring, with marked tubercular tendencies, and in some instances this vitiated blood has been incorporated in a valuable herd to the very serious loss of the owner. There is a marked tendency of the disease to descend from parent to offspring. I have frequently been able to trace it through a herd for three or four generations. It is now also known that it can be communicated directly from one animal to another by careful inoculation, or by feeding tubercular matter to healthy animals. It is also highly probable that it may be communicated by infection.

If healthy animals are kept in tightly closed buildings, with tuberculous patients, the chances are that the contagious character of the disease will be made manifest. It will only be communicated in this way under very favorable circumstances. The fact that the milk of tuberculous cows is charged with the poison germs should cause it

to be rejected in every instance as an article of food. Tuberculosis has been experimentally developed in the lower animals by feeding the milk of cows affected with the disease. As tubercle in man and the bovine species is identical, the conclusion is inevitable that a similar experiment on man could be followed by a similar result. The fact that consumption prevails to an alarming extent in this country, and the same disease is frequently seen in cows that contribute to the milk and beef supply of our people, renders the subject worthy of the most careful investigation by sanitarians.

The disease is characterized by deposits of cheesy-like matter in various parts of the body, especially in the lungs, mesentary and lymphatic glands generally. The animal suffers with persistent cough, which is attended with more or less pain. The secretions become scanty, the mucous membrane becomes of a dark, ashy hue, the hair is rough, the eye dull, the back arched, and the animal usually occupies a standing position. Diarrhœa, rapid emaciation, and death, follow the foregoing symptoms. The patient usually lives from a few months to a year, after the attack. There is no remedy that can be relied on to do more than palliate the disease. When the case becomes well marked the animal should be destroyed.

The following financial statement gives an exhibit of the expenditures of the office from June 30, 1885, to June 30, 1886 :

State of Iowa, to M. Stalker, Dr.

To 194 days service as State Veterinary Surgeon, \$5 per day	\$ 970.00
To personal expenses.....	736.18
To R. M. Nicholson, 163 days service as Deputy State Veterinary Surgeon, \$5 per day.....	815.00
To personal expenses.....	758.08
To J. C. Milnes, 238 days as Deputy State Veterinary Surgeon, \$5 per day.....	1,190.00
To personal expenses.....	1,063.51
	<u>\$5,532.77</u>

LAW CREATING OFFICE OF STATE VETERINARY SURGEON.

[CHAPTER 189, LAWS OF 1884.]

VETERINARY SURGEON.

AN ACT for the appointment of a State Veterinary Surgeon and Defining his Duties.

Be it enacted by the General Assembly of the State of Iowa :

SECTION 1. The Governor shall appoint a State Veterinary Surgeon, who shall hold his office for the term of three years unless sooner removed by the Governor ; he shall be a graduate of some regular and established veterinary college, and shall be skilled in veterinary science ; he shall be a member of the State Board of Health, which membership shall be in addition to that now provided by law. When actually engaged in the discharge of his official duties he shall receive from the state treasury as his compensation the sum of five dollars per day and his actual expenses, which shall be presented under oath and covered by written vouchers before receiving the same.

SEC. 2. He shall have general supervision of all contagious and infectious diseases among domestic animals within or that may be in transit through the state, and he is empowered to establish quarantine against animals thus diseased or that have been exposed to others thus diseased, whether within or without the State, and he may with the concurrence of the State Board of Health, make rules and regulations such as he may deem necessary for the prevention, against the spread, and for the suppression of said disease or diseases, which rules and regulations, after the concurrence of the Governor and executive council, shall be published and enforced, and in doing said things or any of them, he shall have power to call on any one or more peace officers, whose duty it shall be to give him all assistance in their power.

SEC. 3. Any person who willfully hinders, obstructs or resists said Veterinary Surgeon or his assistants, or any peace officer acting under him or them when engaged in the duties or exercising the powers herein conferred, shall be guilty of a misdemeanor and punished accordingly.

SEC. 4. Said Veterinary Surgeon shall on or before the 30th day of June of each year, make a full and detailed report of all and singular his doings since his last report to the Governor, including his compensation and expenses, and the report shall not exceed one hundred and fifty pages of printed matter.

SEC. 5. Whenever the majority of any board of supervisors, city council, trustees of an incorporated town or township trustees, whether in session or not, shall in writing notify the Governor of the prevalence of, or proba-

ble danger from, any of said diseases, he shall notify the State Veterinary Surgeon, who shall at once repair to the place designated in said notice and take such action as the exigencies may demand, and the Governor may in case of emergency appoint a substitute or assistants, with equal power and compensation.

SEC. 6. Whenever in the opinion of the State Veterinary Surgeon the public safety demands the destruction of any stock under the provisions of this act he shall, unless the owner or owners consent to such destruction, notify the Governor, who may appoint two competent veterinary surgeons as advisers, and no stock shall be destroyed except upon the written order of the State Veterinary Surgeon countersigned by them and approved by the Governor, and the owners of all stock destroyed under the provisions of this act, except as hereinafter provided, shall be entitled to receive a reasonable compensation therefore, but not more than its actual value in its condition when condemned, which shall be ascertained and fixed by the State Veterinary Surgeon and the nearest justice of the peace, who if unable to agree shall jointly select another justice of the peace as umpire, and their judgment shall be final when the value of the stock does not exceed one hundred dollars, but in all other cases either party shall have the right to appeal to the circuit court, but such appeal shall not delay the destruction of the diseased animals. The State Veterinary Surgeon shall, as soon thereafter as may be, file his written report thereof with the Governor, who shall, if found correct, endorse his findings thereon, whereupon the Auditor of State shall issue his warrant therefor upon the Treasurer of State, who shall pay the same out of any moneys at his disposal under the provisions of this act; *provided* that no compensation shall be allowed for any stock destroyed while in transit through or across the State, and that the word stock, as herein used, shall be held to include only neat cattle and horses.

SEC. 7. The Governor of the State, with the State Veterinary Surgeon, may co-operate with the Government of the United States for the objects of this act, and the Governor is hereby authorized to receive and receipt for any moneys receivable by this State under the provisions of any act of Congress which may at any time be in force upon this subject, and to pay the same into the State treasury to be used according to the act of Congress and the provisions of this act as nearly as may be.

SEC. 8. There is hereby appropriated out of any money not otherwise appropriated the sum of ten thousand dollars for use in 1884 and 1885, and three thousand dollars annually thereafter, or so much thereof as may be necessary for the uses and purposes set forth.

SEC. 9. Any person, except the veterinary surgeons, called upon under the provisions of this act shall be allowed and receive two dollars per day while actually employed.

Approved, April 14, 1884.

ACTS PASSED BY THE TWENTY-FIRST GENERAL ASSEMBLY.

AN ACT to amend chapter 11, title 24 of the Code, Relating to Contagious Disease in Domestic Animals.

Be it enacted by the General Assembly of the State of Iowa:

SECTION 1. That sections 4058 and 4059 in chapter 11, title 24 of the Code be hereby repealed, and sections 2 and 3 of this act be substituted therefor, and be known hereafter as sections 4058 and 4059 of the Code.

SEC. 4058. Any person or persons driving any cattle into this State, or any agent, servant, or employe of any railroad or other corporation who shall carry, transport or ship any cattle into this State, or any railroad company, or other corporation, or person who shall carry, ship, or deliver any cattle into this State, or the owners, controllers, lessees, or agents, or employes of any stock yards, receiving into such stock yards or in any other inclosure, for the detention of cattle in transit or shipment, or reshipment, or sale, any cattle brought or shipped in any manner into this State, which at the time they were either driven, brought, shipped or transported into this State, were in such condition as to infect with or to communicate to other cattle pleuro-pneumonia, or splenic or Texas fever, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than three hundred dollars and not more than one thousand dollars, or by both fine and imprisonment in the county jail not exceeding six months, in the discretion of the court.

SEC. 4059. Any person who shall be injured or damaged by any of the acts of the persons named in section 4058, and which are prohibited by such section, in addition to the remedy therein provided, may bring an action at law against any such persons, agents, employes or corporations mentioned therein, and recover the actual damages sustained by the person or persons so injured, and neither said criminal proceedings, nor said civil action, in any stage of the same, shall be a bar to a conviction or to a recovery in the other.

RULES AND REGULATIONS.

OFFICE OF THE IOWA STATE BOARD OF HEALTH,
DES MOINES, December 28, 1884.

PURSUANT to authority vested by Chapter 189, Laws of the Twentieth General Assembly, the State Veterinary Surgeon by and with the approval of the State Board of Health, the Governor, and the Executive Council, does hereby make and establish the following rules and regulations for the prevention and restriction of contagious diseases among domestic animals:

DISEASES.

RULE 1. All neat cattle that have been reared, or kept south of the parallel forming the north boundary of Indian Territory, or 37° north latitude, and that have not subsequently been kept continuously at least one winter north of said parallel, and which may be brought within the limits of this State between the first day of April and the first day of November following, except for transportation through the State on railways or boats, shall be subject to quarantine; and all land on which such cattle may have been kept or fed, within this State, shall in like manner be subject to quarantine.

RULE 2. All cattle, as defined in Rule 1, while in transit through this State, which may be removed from any car or boat, within this State, for the purpose of feeding, watering, re-shipment, or other cause whatsoever, shall be confined in yards, stables, or enclosures, separate and apart from all other animals, and no other cattle shall be permitted to come within such yards, stables, or enclosures, or in contact with such quarantined and enclosed cattle.

RULE 3. Between the first day of April and the first day of November following, no cattle whatsoever, except such as are defined in Rule 1, shall be placed within any stable, yard, or other enclosure where cattle have been quarantined under Rule 1, unless such yards, stables and enclosures have been previously thoroughly cleansed and disinfected.

RULE 4. All cattle brought within this State from any county or parish within the United States where pleuro-pneumonia is known to exist, shall be subject to quarantine for a period of not less than sixty days.

RULE 5. The carcasses of all animals that have died from anthrax, shall,

without removal of the hide, or any part of said carcass, be burned, or buried not less than four feet deep in the ground, and thoroughly covered with kerosene before covering with earth.

Reasons for Rule 5. To prevent the possibility of a recurrence of this disease from germs existing in the grave, which if not destroyed by some powerful agent will retain their vitality for a number of years, so as to impart the disease.

As anthrax is communicable by inoculation to human beings, great precaution should be used in handling animals affected with this disease.

RULE 6. No person owning or having the care or custody of any animal affected with glanders or farcy, or which there is reason to believe is affected with said diseases, shall lead, drive, or permit such animal to go on or over any public grounds, unenclosed lands, street, road, public highway, lane, or alley; or permit it to drink at any public water trough, pail, or spring; nor to keep such diseased animal in any enclosure, in or from which such diseased animal may come in contact with, or close proximity to, any animal not affected with such disease.

RULE 7. Whenever notice is given to the trustees of a township, or to the health officer of a local board of health, of animals suspected of being affected with glanders or farcy, said trustees, or health officer, shall immediately require such suspected animals to be isolated and kept separate and apart from all other animals until released by order of the State Veterinary Surgeon or some person acting by his authority.

RULE 8. An animal must be considered as "suspected" when it has stood in a stable with, or been in contact with an animal known to have the glanders; or if placed in a stable, yard or other inclosure where a glandered animal has been kept.

RULE 9. Whenever any animal affected with glanders or farcy shall die, or shall be killed, the body of such animal shall be immediately burned, or buried not less than four feet deep, without removing the hide from the carcass.

RULE 10. No animal diseased with glanders or farcy shall be deemed to have any property value whatever, and no appraisal thereof will be made.

Reasons for Rule 10. Glanders is an incurable disease, and there is no warrant for expending public money in appraising property manifestly worthless, and which can be compensated for only at its actual value in its condition when condemned." Also to prevent the introduction of diseased animals into the State, and the inoculation of worthless ones for speculative purposes.

RULE 11. Whenever the owner, or person having in charge any animal declared by the State Veterinary Surgeon or other authorized person to have the glanders, shall neglect or refuse to destroy said animal, the premises whereon such animal is kept shall be quarantined until such animal is destroyed and the premises thoroughly disinfected.

QUARANTINE.

RULE 12. The term "quarantine" shall be construed to mean the perfect isolation of all diseased or suspected animals from contact with healthy animals; as well as the exclusion of such healthy animals from the yards, stables, enclosures or grounds wherever said suspected or diseased animals are or have been kept.

DISINFECTION.

Among the most efficient and convenient agents for destroying disease germs are heat, solutions of carbolic acid, sulphate of iron, caustic soda, or sulphate of copper; fumes of sulphur or chlorine; chloride of lime, slacked lime, lime-water, whitewash and kerosene oil.

HEAT. This is conveniently applied by means of boiling water or oil, and is especially recommended for disinfecting fabrics of all kinds, leather or wood. Articles of iron or other metals may be purified by heating in a fire. All bedding, litter, excrement, etc., that have accumulated about animals affected with any form of contagious disease, and the carcasses, together with all blood, or other fluid elements that have escaped from such carcasses, should be burned, as the surest means of eradicating the disease.

Dirt or earth floors of stables wherein animals affected with glanders or anthrax have been kept, should be removed to the depth of four inches and burned.

SOLUTIONS.

Carbolic Acid. Add one part of the acid to five or ten parts of water or oil.

Sulphate of Iron, Copper and Caustic Soda. Add as much of the substance to a given quantity of warm water as will be dissolved.

Whitewash. For disinfecting interior walls of buildings, feed-boxes, man-gers, yard fences, etc., the application of a coating of whitewash prepared from lime in the ordinary way, so thoroughly done as to completely cover every part of the surface designed to be cleansed, is an economical method.

FUMIGANTS.

Sulphur. Fumes of sulphur are adapted to disinfecting buildings that can be closed so as to confine the fumes, and especially such parts of buildings as are not readily accessible for cleaning. They may be generated by placing a few pounds of sulphur in an iron vessel, adding a small quantity of kerosene oil, or alcohol, and setting fire thereto.

Chloride of Lime. Chloride of lime and slaked lime for disinfecting floors, yard, carcasses and ground where dead or diseased animals have lain, should be thickly scattered over the surface of objects to be disinfected.

Chlorine. To generate, take peroxide of managanese (to be obtained at any drug store), place in an earthen dish and add one pound of hydrochloric acid (sometimes called muriatic acid), to each four ounces of the peroxide of managanese. Care should be taken not to inhale the gas.

After the floors, walls, etc., of a contaminated building have been cleansed, they should be fumigated by some of the foregoing agents. The doors should be closed, and the building otherwise made as tight as possible. Fumes should then be evolved in the building for not less than half a day, and the doors kept closed not less than twenty-four hours, when air and sunlight should be freely admitted.

BURIALS.

Kerosene Oil. Carcasses buried in the earth, where there is danger of exhumation by other animals, should, previous to burial, be thoroughly saturated with kerosene oil. This will tend to destroy the virus, and will prevent carnivorous animals disturbing the carcass and thereby spreading the disease.

FREEZING. It has been demonstrated repeatedly in Iowa, that the frosts of winter thoroughly disinfect pasture lands that have been poisoned with the virus of Texas fever by herds of Southern cattle during the summer months. From the first of April to the first of November, the virus is likely to retain its vitality, and the strictest precaution is necessary to prevent communication of the disease of Northern cattle. The purifying effect of frost, however, cannot be relied upon for destroying the virus of any other disease than Texas Fever, liable to attack live stock in Iowa.

It is for the interest of every community, on the appearance of contagious or infectious diseases among animals, to adopt speedy measures to eradicate the same, and to co-operate with the State Veterinary Surgeon in securing such results in the shortest possible time.

APPROVED:

L. F. ANDREWS,

Acting Secretary State Board of Health.

M. STALKER,

State Veterinary Surgeon.

W. S. ROBERTSON,

President State Board of Health.

BUREN R. SHERMAN, *Governor.*

J. A. T. HULL,
J. L. BROWN,
E. H. CONGER, } *Executive Council.*

A PROCLAMATION.

STATE OF IOWA. }
EXECUTIVE DEPARTMENT. }

BY THE GOVERNOR.

WHEREAS, Reliable information from the State Veterinary Surgeon, and otherwise, has reached me, that the dread epidemic, pleuro-pneumonia, exists in virulent and contagious form in many of the States of the Union, among the cattle thereof; and,

WHEREAS, In view of the prominent position held by Iowa as a cattle producing and cattle feeding State, being first in value and rank therein among all the States and Territories, and the immense investments in such stock held by our people; and,

WHEREAS, It is of greatest importance that this vast interest, involving many millions of valuable property, should be protected to the people of the State, and to the end that the good name of the State as a stock and food producing district shall be maintained.

Now, therefore, I, BUREN R. SHERMAN, Governor of the State of Iowa, by virtue of the authority in me vested by the constitution and laws of the State, do hereby declare and establish quarantine at the boundaries thereof, against all animals infected with said disease, pleuro pneumonia, or that have been exposed thereto, and I do hereby absolutely prohibit the importation into the State, all cattle shipped or driven from the States hereinafter named, unless the same shall be accompanied by a certificate of health given by the State Veterinary Surgeon of said States, who shall have first made careful examination of such cattle, viz:

The States of Connecticut, New York, New Jersey, Pennsylvania, Maryland, Virginia, West Virginia, Delaware, Ohio, Kentucky, Tennessee, Indiana, Illinois, Missouri, and the District of Columbia. All railroad and transportation companies are hereby forbidden to bring into this State any cattle from the localities above named unless the proper health certificate, as above specified, shall accompany the shipment.

I appeal to all good citizens to assist in the enforcement hereof, and especially direct all sheriffs, constables, and other peace officers, and the boards of health throughout the State, and the State Veterinary Surgeon and his several deputies, shall see that this proclamation is obeyed.

In testimony whereof, I hereunto set my hand, and caused to be affixed the great seal of the State of Iowa. Done at Des Moines, this 29th day of April, A. D. 1885.

[SEAL.]

BUREN R. SHERMAN.

By the Governor:

FRANK D. JACKSON, *Secretary of State.*

RULES AND REGULATIONS GOVERNING QUARANTINE AGAINST PLEURO-PNEUMONIA AMONG DOMESTIC ANIMALS.

OFFICE OF THE IOWA STATE BOARD OF HEALTH,
DES MOINES, June 1, 1885. }

WHEREAS, Buren R. Sherman, Governor of the State of Iowa, did on the 29th day of April, 1885, by proclamation, establish quarantine against introduction into this State of all cattle from the following named States, to-wit: Connecticut, New York, New Jersey, Pennsylvania, Maryland, Virginia, West Virginia, Delaware, Ohio, Kentucky, Tennessee, Indiana, Illinois, Missouri, and the District of Columbia, except such animals are accompanied by a certificate of health, signed by the State Veterinary Surgeon of the State from which the animals were shipped.

Now, therefore, by, and with the concurrence of the Governor, the Executive Council, and State Board of Health, I, M. Stalker, State Veterinary Surgeon of the State of Iowa, in order to provide more adequate protection to the cattle interests of the State, by virtue of the power vested by chapter 189, section 2, laws of the Twentieth General Assembly, do hereby promulgate the following rules and regulations governing quarantine and the introduction of cattle into the State of Iowa from the above mentioned subdivisions of the United States, against which quarantine has been established.

RULES AND REGULATIONS.

First. The owner, shipper or attendant of all cattle coming into this State from localities quarantined against, will be required to furnish the following evidence that said animals are free from contagious disease:

(a.) Certificate of health signed by the State Veterinary Surgeon of the State from which the cattle were shipped; or by some other competent veterinary surgeon commissioned by the Governor to make inspections and grant such certificates; or by a veterinary inspector of the United States Bureau of Animal Industry.

(b.) Affidavit of two disinterested citizens of the county from which the cattle were shipped, that they have personal knowledge that the animals have not been exposed to contagious Pleuro-Pneumonia during a period of four months immediately preceding the date of shipment.

(c.) Affidavit of owner made at the point of entry into this State, that the cattle are the identical animals described in the bill of health, and foregoing affidavit; and that they were shipped in cars free from virus of pleuro-pneumonia; and that they have not been exposed to any contagious disease while in transit.

Second. The foregoing evidence shall be submitted to the mayor of the nearest city or town in this State to the point of entry.

Third. A copy of the above evidence shall be furnished by such mayor to the State Veterinary Surgeon of this State.

Fourth. All cattle coming into this State in violation of the proclamation of the Governor, or the foregoing rules and regulations, may be held in quarantine for ninety days at the expense of the owner.

M. STALKER,

State Veterinary Surgeon.

W. S. ROBERTSON, M. D.,

President Iowa State Board of Health.

APPROVED:

J. F. KENNEDY, M. D.,

Secretary Iowa State Board of Health.

BUREN R. SHERMAN,

Governor.

J. W. CATTELL,

FRANK D. JACKSON,

V. P. TWOMBLY.

Executive Council.

The foregoing embraces the laws providing for the appointment of a State Veterinary Surgeon, the proclamation of the Governor against the importation of cattle from districts affected with pleuro-pneumonia, and the rules framed for carrying out the intent of the proclamation. These embrace all the law and the rules pertaining to the work of this office that are now in force.

All of which is respectfully submitted.

M. STALKER,

State Veterinary Surgeon.

Ames, June 30, 1886.