

NINTH ANNUAL REPORT

OF THE

State Veterinary Surgeon

OF THE

STATE OF IOWA.

FOR THE

YEAR ENDING JUNE 30, 1893.

PRINTED BY ORDER OF THE GENERAL ASSEMBLY

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1893.

OFFICE OF STATE VETERINARY SURGEON, }
Ames, June, 30, 1893. }

HON. HORACE BOIES, *Governor:*

In accordance with the provisions of Chapter 189, Laws of 1884, the report of the Veterinary Surgeon, for the year ending June 30, 1893, is herewith submitted.

M. STALKER,
State Veterinary Surgeon.

REPORT.

In presenting this, the ninth annual report of the State Veterinary Surgeon, I have little to say of a general nature other than a word of congratulation to stock owners for the general condition of good health prevailing among the live stock of the State. I have from year to year since I have been endeavoring to discharge the duties of this office, given the executive a brief statement as to the health condition of our domestic animals, and the extent of the work done in the interest of that important industry. During the earlier years of the existence of this office, the work of those employed under its provisions was directed largely to the extermination of glanders. While the provisions of the law are possibly not the best that could be devised for the accomplishment of this work, I feel that on the whole the results have been quite satisfactory. Under the operations of the law, this loathsome disease has practically disappeared from the State. The calls for investigation of suspected cases have grown less frequent year by year, till now it has grown to be rather a rare thing to detect a case; while formerly they could be enumerated by the hundreds. However, so long as there are cases in adjoining states, we will from time to time have occasion for the exercise of the law and there will be constant demand for watchfulness in this direction. There has been little of a serious nature during the last annual period, if we except possibly diseases among swine. This branch of live stock does not come within the full scope of the law, but I have from time to time rendered such assistance as I have been able to give to different communities where swine were extensively affected. This has been largely advisory. In the body of this report will be found an article on this subject, which renders it superfluous to extend remarks in this connection.

Brief comments on other topics will be found, and appended is a condensed statement of expenses for the year ending June 30th. All of which is respectfully submitted.

SWINE PLAGUE AND HOG CHOLERA.

While swine plague continues to be a cause of serious loss to the hog growers of Iowa, it does not appear to have the unrestricted sway it held in former years. I use the term swine plague, though many of our farmers now know that according to the best light we have on this subject, there are two diseases of about equal activity as regards contagion, and followed by about equal percentages of fatality. The two have been designated respectively, swine plague and hog cholera. According to investigations made by the Bureau of Animal Industry, these diseases frequently exist together without being differentiated or recognized as distinct diseases. Both being attended with a high mortality rate, and running a comparatively short course and not presenting external symptoms so distinctly different as to attract the attention of the non-professional observer, it is not a matter of surprise that the distinction between the two diseases should not always be made out. Take in connection the fact of frequent co-existence of the two diseases with the consequent confusion of clinical symptoms and postmortem appearance, and the failures become less a matter of surprise. I have by my own observations frequently confirmed the teachings of the bureau as to the existence of two fairly distinct classes of postmortem symptoms, pointing to the presence of two distinct diseases in what at first appeared to be a single infection of a herd. As regards practical results, there is little occasion for the farmer to choose between the two, if he were granted the privilege of an option. He would likely think each worse than the other. The sanitarian is confronted with about equal obstacles when he attempts the work of eradication or control of one or the other of these diseases.

It is true that for sixty years, hog cholera or swine plague, one or both have extended from a single center of infection in the United States, until the losses have become sufficiently large to justify the attention of any one giving thought to the resources of our country. Conservative estimates place the loss for a single year at \$25,000,000 or approximately ten per cent of the entire value of the product.

After sixty years of helpless onlooking at this loss, of careful observation, of painstaking, experimental work, there is little to offer to the farmer as the result of all these years of experience. At least there is very little to offer him from the direction from which he expected most. Whole herds are swept away by disease, despite the best veterinary medical skill, just as they were half a century ago. Science, empiricism and quackery are equally unavailing. The question then arises, is there to be no relief from this condition? Will

farmers continue in the future, as in the past, to lose the labor of the year or the accumulations of many years by the ravages of these diseases? If sixty years have not sufficed to discover a specific, is it ever to be found? I do not believe it is a necessity that this state of things should continue, nor do I hope for the discovery of a remedy that shall prove efficacious in the treatment of the disease. The remedy is to be found not in a *cure*, but in *prevention*.

So far as therapeutic agents go, the doctor can do little more for a case of typhoid fever, scarlet fever or diphtheria than he could a half century ago; but he knows infinitely better how to prevent the spread of these diseases. If he is not successful in the treatment of an individual case, he knows how to prevent the multiplication of these cases. And it is from these methods of prevention that we are to learn our most important lessons. We have abundant testimony as to the value of efficient veterinary sanitary police regulations, in the extermination of at least one disease in our country. Pleuro pneumonia, that most insidious of all diseases affecting domestic animals, had found its way to about half the states of this Union. It was thoroughly entrenched in the largest centers of live stock traffic in the world. This was the condition of things seven years ago. We now have the statement of the Secretary of Agriculture as authority for saying that there has not been a case of pleuro pneumonia in the United States for nearly two years. Not a case was *cured*, but the disease was eradicated—stamped out. Its spread was interrupted by adequate restriction on traffic, and the systematic work of slaughter and disinfection was gone into with thoroughness. This work cost the government less money all told than has been lost by some individual states from the presence of the disease. The work was carried on in the face of the most bitter opposition from influential sources. The more advanced thinkers among veterinarians had repeatedly proclaimed this as the only practical method of dealing with the scourge. No small contingent of the press raised the cry of "jobbery" at these suggestions, but the work was carried on to a most satisfactory completion. It has been my opinion for many years that similar methods properly employed would free the country from the ravages of disease among swine; diseases that have caused many times over the amount of damage sustained from pleuro pneumonia.

I have already stated that swine diseases do not spread in the unrestricted manner as formerly. This is in a large degree due to the better understanding farmers have of the nature of these diseases. There are few of the better class of farmers who do not now understand the specific and contagious character, and that they are not due to local conditions existing on the farms where the epizootics occur.

Along with this better knowledge comes greater precautions against contagion, and consequently less rapid spread of disease. Recently, while engaged in making investigation on a farm where a number of swine had died, several farmers came in to witness the work. I was somewhat surprised at the conversation among them. All seemed to be thoroughly aware of the fact that should they return to their own stock yards without taking precautions against carrying the germs of the disease on their shoes or clothing, they would in all probability be responsible for infecting their own stock. This sort of knowledge and care is doing much to restrict the spread of swine diseases, but can never be relied upon for complete and thorough eradication.

Every farmer may do much toward self protection by remembering a few well known facts with reference to these diseases; that is, he may materially lessen the chances of infection. He should remember:

First—That swine plague and hog cholera are specific, contagious diseases; that every case of infection comes from some pre-existing cause.

Second—That it is not necessary that swine should be exposed to other individuals, affected with the disease, in order to contract it. That all litter, bedding, buildings, cars, soils, or other objects with which diseased animals or their non-disinfected products come in contact, are certain sources of danger.

Third—That the germs of the disease will remain active and in condition to produce disease for several months after being deposited on such objects.

Fourth—That birds, dogs and other animals, as well as men traveling from diseased to unaffected herds, may become the carriers of disease germs.

Fifth—That prompt destruction of diseased animals and cremation of all carcasses will greatly diminish the danger of extending the disease.

Sixth—In view of the danger from such accidental infection, when the disease exists in the community, it is business prudence to dispose of all surplus stock, in condition to be sent to market.

Until state or federal legislation comes to the aid of the farmer, his greatest security is to be found in the observance of these precautions, with all the multitude of detail which they imply.

PARASITIC DISEASES AMONG SHEEP.

I have occasional calls for information in regard to diseases affecting sheep. In one instance, a farmer residing in the northern part of the State, shipped a lamb to the College, as furnishing an illustration

of a number of cases in his flock. The owner informed me that he had fourteen lambs out of a flock of eighty, affected with swelling about the jaws, loss of appetite, diarrhoea, emaciation, some interruption of respiration and a general unthrifty condition. A portion of the affected ones had already died. The one shipped to the College died the night after its arrival. Postmortem examination revealed a general anæmic or bloodless condition, flabby state of the various tissues, and a dropsical condition of the serous cavities, with engorgement in the intermaxillary space. Nothing was found outside of the digestive tract that would serve as an explanation as to the cause of death. On opening the stomach, countless thousands of thread worms, *strongylus contortus*, could be seen by carefully inspecting the contents. They were too small to have any of their peculiarities made out, or in fact recognized as parasites, without the aid of a glass. They presented the appearance of fine hairs floating in the liquids of the stomach. They were so minute as to have gone unrecognized by an inexperienced observer.

These parasites were the cause of the trouble. The swellings about the throat and many of the other symptoms were simply incidental to the general condition of malnutrition. Dropsical effusions are general symptoms attending many forms of disease where imperfect nutrition is present. This particular species rarely affects aged sheep; and this fact is in accord with the history of the outbreak under consideration. Sheep having access to surface water are much more likely to be affected than those watered from pure wells. A single affected individual may, however, contaminate an entire flock.

Treatment is not altogether satisfactory, though, if properly directed, may be beneficial. Daily doses of from three to five grains of picrate of potassa continued for a few days will, in many instances, prove destructive to the worms. A teaspoon full of oil of turpentine or empyreumatic oil, administered twice daily, is a successful remedy. These, of course, must be diluted to prevent injury to membranes. The animals should be allowed free access to salt. On one or two farms tape worms have become so numerous as to assume the form of an enzootic. The symptoms are much the same as those attending the presence of other intestinal worms, and the conditions favoring their development and method of prevention and treatment not unlike.

MALLEIN TESTS.

Some interesting observations have been made on the use of mallein during the past year. The term *mallein* is applied to the filtrate obtained from culture media, in which the bacillus of glanders has been

grown. This substance, when free from all germs, is incapable of producing the disease even when introduced into the circulation of a susceptible animal. But it possesses the peculiar property of producing a uniform effect on animals diseased with glanders, while it is inert on other individuals. The effect on the diseased animal is shown by marked elevation of temperature within a few hours after the patient has received a hypodermic injection of the liquid. The maximum rise in temperature is usually about three degrees F; and this point is ordinarily reached in about twelve hours. From this time the temperature gradually falls to the normal. Aside from the rise of temperature, no especial symptoms are developed, and no effects either beneficial or harmful seem to result. Animals free from the disease show no symptoms whatever as the result of similar treatment. The only apparent virtue possessed by the preparation is as an aid in making a certain diagnosis of this one disease. It is a fact, well known to veterinarians, that in many cases of chronic glanders the symptoms are so ill-defined that a certain diagnosis from a single examination is impossible. The use of mallein seems destined to become an important aid in the determination of these obscure cases. An animal having the disease in ever so mild a form is a source of danger, and the very insignificance of the symptoms will often mislead the owner, and serious consequences may result. So far as observations go, the preparation possesses no curative value; but should it prove, as now seems probable, a certain means of diagnosis in obscure cases, its value to professional men and stock owners will be of no mean importance.

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 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 enclosures 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 disease, 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 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 enclosure 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 chlorine; chloride of lime, slaked lime, lime water, whitewash and kerosene oil.

HEAT. This 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 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, mangers, 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.

Chloride of Lime. Chloride of lime and slaked lime for disinfecting floors, yards, carcasses and ground where dead or diseased animals have lain, should be scattered thickly, in fine powder over the surface of the object to be disinfected, so as to form a complete covering.

Chlorine. To generate, take peroxide of manganese (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 manganese. 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 to 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 disease among animals, to adopt speedy measures to eradicate the same, and to coöperate with the State Veterinary Surgeon in securing such result in the shortest possible time.

M. STALKER,
State Veterinary Surgeon.

Approved:

W. S. ROBERTSON,
President State Board of Health.

L. F. ANDREWS,
Acting Secretary State Board of Health.

B. R. SHERMAN,
Governor.

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