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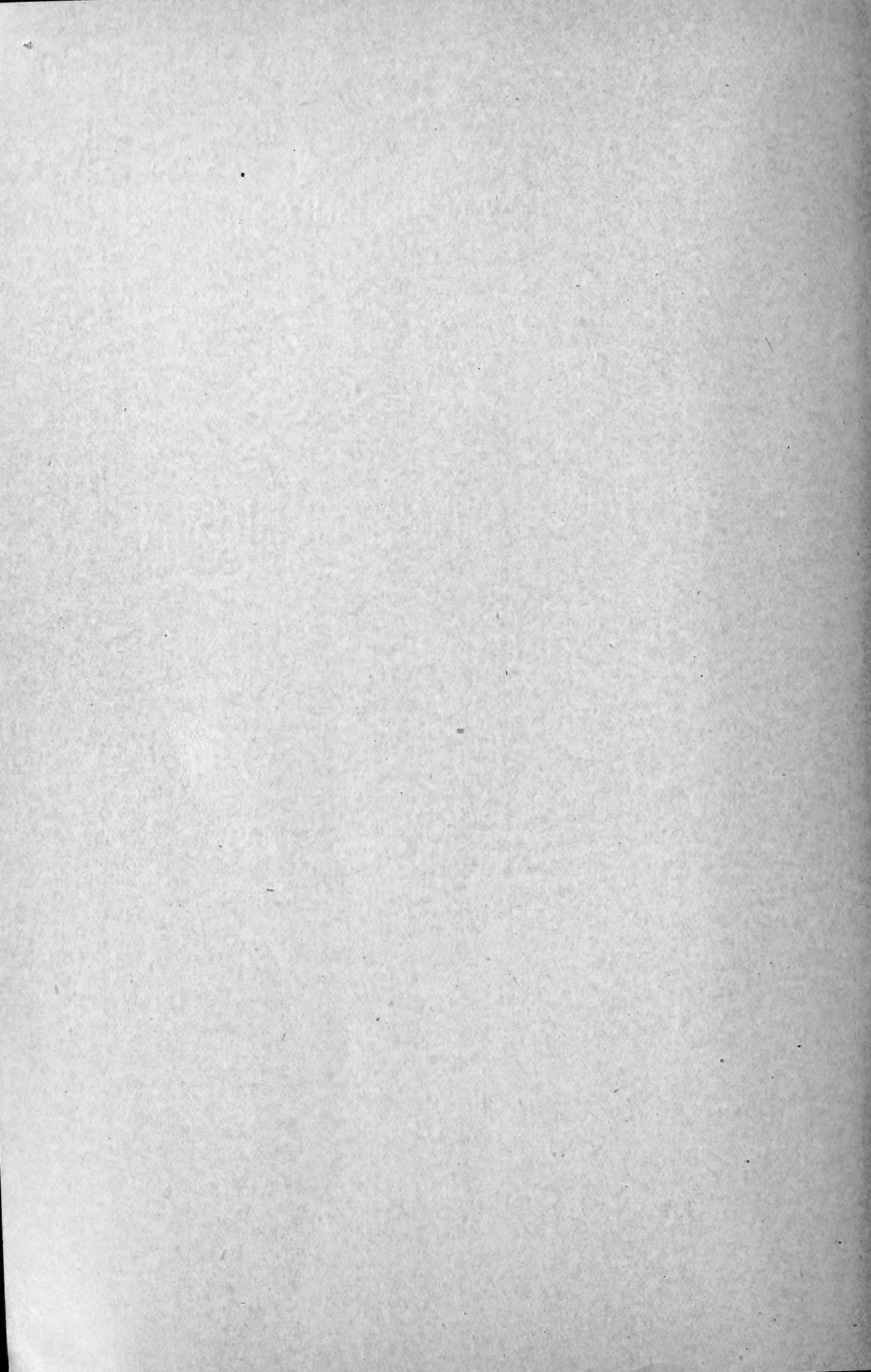
BIENNIAL REPORT  
OF THE  
KANSAS  
LIVE-STOCK SANITARY COMMISSION,  
1901-'02.

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M. C. CAMPBELL, Wichita, *Chairman.*  
F. H. CHAMBERLAIN, Sedan, *Secretary.*  
W. F. COWLEY, Columbus, *Treasurer.*

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TOPEKA:  
W. Y. MORGAN, STATE PRINTER.  
1903.



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# REPORT.

TOPEKA, KAN., January 8, 1903.

*To his Excellency Governor Stanley:*

SIR—Pursuant to the General Statutes of 1901, we, the Live-stock Sanitary Commission of Kansas—M. C. Campbell, chairman, F. H. Chamberlain, secretary, and W. F. Cowley, treasurer—beg to submit for your honorable consideration a report of the work accomplished for the year ending with December 31, 1902, together with which we wish to combine the work for the year 1901, making the biennial report.

The revision of the statutes of 1901, which called for the inspection of all cattle destined for points in Kansas and the Kansas City market which originated from south of the thirty-seventh parallel of north latitude, being the south line of the state of Kansas, and extending from the Mississippi river to the Pacific coast, greatly enlarged the duties and labors of this commission. For the above reason, inspectors to the number of four in excess of those contemplated by the last legislature have been appointed to carry out the requirements of the statutes, as follows: L. Musgrove, Arkansas City; A. M. Colson, Caldwell; J. P. Campbell, Ashland; A. O. Edmonds, Liberal. The regularly appointed inspectors for which an appropriation was made are as follows: D. R. Streeter, Kiowa; J. H. Johnson, Fort Worth; Wit Adair, Amarillo; and Chas. B. Collins, of Baxter Springs, as patrolman of the state line, between Missouri and the Arkansas river.

The result of the labors of this commission for the year ending December 31, 1901, was 266,374 cattle inspected, of which 213,626 were issued certificates of health and the legal fee of two cents per head collected therefor, amounting to \$4272.52; the balance, 52,748, were passed under the slaughter clause, for which no fees were collected.

Texas fever caused the quarantining of 2316 head, out of which the owners sustained a loss of 241.

During the year twenty-six head of glandered horses were reported, all of which were properly disposed of by the owners of the same or the sheriffs of their respective counties, under the direction of the commission.

The total cost of performing the above service was \$6349.11.

1901-1902

Inspectors Colson, Campbell, Edmonds and Musgrove remain unpaid, for reasons above stated.

In continuation of this report, we wish to present to you the result of the work of the commission for the year ending December 31, 1902, as follows: 636,344 head of cattle have been inspected, of which 298,877 were granted certificates of health and the fee collected therefor, amounting to \$5977.54; 337,867 have been passed free of charge under the clause exempting cattle which are for immediate slaughter; 4000 were placed under quarantine on account of Texas fever, and the loss sustained was 418; 27 distinct cases of glanders were reported, and disposed of under the direction of the commission. The total cost for the work of 1902 was \$9914.55.

During the two years of 1901 and 1902, 902,618 head of cattle have been inspected, and 512,503 head were granted certificates of health and the fee collected, amounting to \$10,250.06; 390,115 were passed free of charge, under the clause exempting "slaughter" cattle.

Out of the 6316 quarantined, the loss was 659.

Fifty-three cases of glanders were disposed of by the owners and sheriffs of their respective counties, under the direction of the commission.

Out of the number of cattle offered for admission to the state and market, 7600 head were found to be infectious, and were sent to the quarantine pens or returned to their place of origin.

The total expense of the commission for the two years was \$16,263 66.

Thus, it may be seen that, if the cattle which have been passed under the exemption law had been held liable for charges, the same as other cattle, the commission would have been self-sustaining.

It is the opinion of this commission that all cattle entering Kansas for any purpose, excepting those consigned to the quarantine division, should be held liable for charges according to the statute, or that all destined for the market should be exempt, for the reason that both classes are handled in the same division of the Kansas City market.

M. C. CAMPBELL, *Chairman.*

F. H. CHAMBERLAIN, *Secretary.*

W. F. COWLEY, *Treasurer.*

## LIVE-STOCK SANITARY RULES AND REGULATIONS

FOR THE ADMISSION OF CATTLE INTO KANSAS FROM SOUTH OF THE THIRTY-SEVENTH PARALLEL OF NORTH LATITUDE.

**RULE 1.** That part of the stock-yards of Kansas City west of the Kaw river, and known as the "quarantine division," together with all chutes and approaches thereto, is hereby set apart for the reception and handling of "Southern cattle," and such other cattle as arrive at the Kansas City stock-yards in violation of the sanitary rules and regulations of this commission.

**RULE 2.** Each car carrying cattle, and carrying the same in the course of transportation from said infectious area into or through the state of Kansas, must have a placard firmly attached, stating in bold letters, "This car contains Southern cattle"; and the way-bill of the said car shall have marked plainly on the face thereof the words "Southern cattle."

**RULE 3.** On unloading Southern cattle at points of destination or for feed, water, or rest, at any stock-yards in Kansas, certain chutes, alleys and pens must be set apart for their exclusive use; and whenever any Southern cattle that have been unloaded in Kansas shall be reshipped to other points of destination, the cars in which said cattle are to be reloaded must be placarded and way-bills thereof marked plainly "Southern cattle."

**RULE 4.** Cars that have carried Southern or infectious cattle shall be thoroughly disinfected before being loaded with non-infectious cattle. All litter and manure taken from the cars, when disinfected, must be stored where no cattle can come in contact with it, or so treated as to destroy all means of infection.

**RULE 5.** Where a pasture lies on both sides of the quarantine line, all of said pasture shall be treated as being south or below said quarantine line described in the governor's proclamation. In pastures or upon ranges where ticks (*Boophilus bovis*) are known to exist, and where, in the judgment of this commission, said ticks, owing to favorable conditions, are likely to live through the winter season, said pastures shall be placed in quarantine and no cattle allowed to run in said pasture from the 1st day of April until the 1st day of October. The pasture may be used, however, for the range of other animals.

**RULE 6.** The laws of 1901 expressly forbid the introduction of cattle into the state of Kansas from any point south of the south line of the state of Kansas (being the thirty-seventh parallel of north latitude), without inspection, except for immediate slaughter, and then only under such rules and regulations as may be prescribed by this board. Therefore, all cattle introduced or brought into the state for any other purposes than immediate slaughter must be first carefully inspected by a member or inspector of this board, and a certificate of health issued by such inspector or member of this board, showing that the cattle have been inspected and found free from fever ticks (*Boophilus bovis*), that the inspection fee prescribed by law (two cents per head) has been paid, the name of the owner and the person in charge of said cattle, and the point of origin and the place of destination; and such certificate shall be evidence that the owner or person in charge of the cattle therein described has a right and is authorized to bring such cattle into the state of Kansas. One copy of said certificate must be attached to way-bill stub accompanying such cattle, one copy given to the owner or person in charge of the cattle, and one copy sent to the secretary of this commission.

RULE 7. Any persons desiring to avail themselves of the free-passage clause in the movement of cattle for immediate slaughter, and cattle destined to points beyond the limits of Kansas from south of the thirty-seventh parallel of north latitude and north of the federal quarantine line, may do so by furnishing any member of this commission, or any of its legally appointed inspectors, an affidavit showing that the said cattle originated from north of the federal quarantine line and have not come in contact with Southern or ticky cattle, or trails made by such cattle, since January 15, 1902, and that they are intended for immediate slaughter only, and will not be offered for sale in any market within the state, or in the Kansas City market as feeders, to be returned to Kansas for feeding or grazing purposes. Under these conditions, the inspector may issue slaughter certificates in the same manner as in rule 6, and pass such cattle free of charge; also, will treat cattle in the same manner originating from same locality which are destined to points beyond the limits of Kansas, providing that the railroads and transportation companies carrying such cattle will provide pens for feed and rest for such cattle separate and apart from those intended for the use of native cattle of the state or cattle destined for Kansas points for grazing or feeding purposes.

RULE 8. An agent for the state of Kansas shall be appointed by the Live-stock Sanitary Commission for any public stock-yards whenever said commission shall deem such agent necessary to protect the health of the live stock of the state and to prevent the spread of contagious diseases. Such agent shall be paid by the owners of the stock-yards where he may be located. His compensation shall be fixed and his duties prescribed by the Live-stock Sanitary Commission of Kansas.

RULE 9. It shall be the duty of the managers or persons in charge of any stock-yards in Kansas to keep the said yards in proper sanitary condition for the protection of the health of the live stock entrusted to their care, and to cleanse and disinfect all yards and pens, chutes and alleys, at such times and in such manner as may be deemed necessary by this commission or its authorized agents.

RULE 10. The townships of Garden, Lowell, and that portion of Spring Valley described as follows, to wit: All of township 35, and sections 23, 24, 25, 26, 35 and 36 of township 34, range 24 east, all in Cherokee county, Kansas, are hereby specially quarantined, and no cattle shall be admitted to other parts of Kansas or the state of Missouri from above-named townships except they shall first be inspected by an agent or inspector of this commission, and found to be free from fever ticks (*Boophilus bovis*), and when allowed to go shall be accompanied by a permit issued by said agent or inspector. Cattle coming from Missouri, if accompanied with health bills required by the sanitary board of said state, shall be admitted to Kansas without further requirements.

RULE 11. The counties of Jasper, Newton, McDonald, Barry, Stone, Taney and Ozark, and the township of Thayer, in Oregon county, all in the state of Missouri, are deemed and shall be considered infectious territory, and the cattle therein shall only be brought into the state of Kansas upon the terms and conditions prescribed by rule 6 of these regulations; provided, however, that the fee provided by law and referred to in rule 6 of these regulations may be paid to the Live-stock Sanitary Commission of Kansas or any of its legally appointed inspectors.

RULE 12. All railroads, live-stock transportation and stock-yards companies and their employees, and all other persons, are hereby forbidden to transport,



drive, or in any way handle cattle in Kansas, except in compliance with the foregoing rules, under the pains and penalties of the following statute:

Extract from chapter 2, Session Laws of 1884: "SEC. 21. Any person who shall violate, disregard, or evade, or attempt to violate, disregard, or evade, any of the rules, regulations, orders or directions of the Live-stock Sanitary Commission, establishing and governing quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than \$100 nor more than \$5000."

By an act supplementary to and amendatory of chapter 139 and chapter 142 of the General Statutes of Kansas, 1897, the collection of a fee for the inspection of cattle is now a statutory law of Kansas, and all money so collected is paid into the state treasury.

Done at our office, in Topeka, Kan., March 1, 1902.

By order of the Live-stock Sanitary Commission.

M. C. CAMPBELL,  
F. H. CHAMBERLAIN,  
W. F. COWLEY,  
*Members.*

## VETERINARIAN'S REPORT.

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### FOOT-AND-MOUTH DISEASE.

During the fall of 1902, the live-stock interests of this country were somewhat alarmed by the appearance of foot-and-mouth disease in some of the New England states. The infection is reported to have been brought from Europe in hay or litter that had been in contact with animals affected with the disease. Energetic quarantine measures were adopted by those states in which the disease occurred, as well as by the United States Department of Agriculture, through the Bureau of Animal Industry, and as a result the spread of the disease was checked and at the present time is rapidly being stamped out.

Foot-and-mouth disease is a highly contagious disease, attacking cattle, sheep, hogs, and goats; it spreads rapidly; forty-eight hours after exposure a number of animals in a herd will show signs of the disease. The symptoms are a high fever; the temperature ranging from 104 to 107 degrees F.; there is a loss of appetite and great depression; blisters form on the tongue, lips, palate, the udders of females, and about the cornea (top of the hoof). These blisters soon become raw, angry sores. Animals are unable to eat coarse food; there is grinding of the teeth and profuse salivary flow from the mouth. The disease spreads rapidly from herd to herd, being carried by persons, hay or other material that may have been in contact with diseased animals; it is also spread by direct contact. While direct loss by death from this disease is not necessarily great, the damage that would result, should this disease gain a foothold in the great live-stock-growing regions of the West, would be immense. Great credit is due the state and federal authorities for the extermination of the disease.

Many outbreaks of disease among domestic animals, which often cause severe losses, that are reported for investigation, are not contagious in that they may spread from place to place, but are often due to purely local causes, such as improper food or feeding, some local infection of the quarters occupied, or infected food- or water-supply.

### IMPURE DRINKING WATER FOR STOCK.

The purest water for stock is that generally obtained from driven wells, provided the well is deep enough and is so located that there is no surface-drainage into the well. Spring-water is usually of excellent quality and the water from streams fairly good, depending upon

the character of the stream. It is known that running water in streams purifies itself by running and the exposure to air and sunlight. Pure water is very essential to the successful handling of stock, as animals seldom drink sufficient water if it is not of good quality, and impure water is often a source of disease, especially among hogs and cattle. Precautions should always be taken that hogs kept along small streams do not become infected with cholera, by carcasses of animals dying from this disease being thrown in the stream farther up. Pond-water, while frequently used, is very apt to become infected, especially if it is reduced in quantity and is so situated that it receives surface-drainage from yards or corrals or is contaminated by cattle standing in the pond. Ponds of considerable area are often kept moderately pure by the wind stirring the water on the surface and the action of direct sunlight. Muddy water or stagnant water which is covered by a scum should be regarded with suspicion.

During the summer of 1901, owing to the excessive drought, the water-supply for stock in many places was greatly reduced in quantity and of very poor quality, especially where ponds filled by surface-drainage were depended upon for water. This was especially true over an area in the eastern-central part of the state where high, rolling prairie land is used for large pastures. In one instance the cattle were attacked by violent purging, which caused the death of quite a number. Upon supplying good water the disease disappeared. In other instances a chronic pneumonia attacked cattle that were supplied with a limited amount of water of very bad quality. The cattle improved and the disease disappeared by supplying them with pure water.

#### BAD FOOD.

Foods injurious to animals may be divided into two general classes, the first class including those plants or foods where the injurious effects are shown immediately or soon after eating. The second class includes those foods where the injurious action does not occur at once, but follows the impairment of some of the vital functions. In this class may be included such plants and foods as loco-weed, cottonseed-meal, and ergot.

Most cases of accidental poisoning of stock from eating plants occur in the early spring, when stock is first turned on pasture, particularly when the usual pasture grasses have not started sufficiently to furnish ample food. Under such conditions animals will eat plants and weeds that under ordinary circumstances they will not touch. Similar fatal results may occur among animals when they are first changed to new pastures. Another important fact in the poisoning of animals from bad food is the physical condition of the animal. If they are thin in flesh, with little food in the stomach, and hungry,

fatal results may follow that would not occur if the animals were well-fed and in good condition before being placed on pasture. Quite a number of animals that were thin in flesh and hungry have died the past spring from eating weeds such as dock, and other common weeds that are not ordinarily considered poisonous. Several severe losses of hogs have occurred from eating cockle-burs, especially when the burs are just sprouting and in the two-leaf stage.

Another loss of six colts was investigated that was probably due to their eating the common yarrow. The colts were thin in flesh, very weak and debilitated, and, when turned upon the pasture before the grass started, ate sufficient quantities of yarrow to cause death.

From observations made during the past two years, it is probable that many losses of stock from so-called poisoning from eating plants is not due to a poison in the plant, but in some cases it is undoubtedly due to acute indigestion; in other cases, the sudden change of food and the poor physical condition of the animal seem to paralyze the digestive organs; the food which they contained decomposes and poisonous substances are formed that kill the animal.

In the western part of the state, a number of cattle were lost from starvation, especially cows that were heavy with calf and cattle that were shipped in and were not used to "rustling" on buffalo-grass. Unless there is an abundance of pasture, cattlemen should not attempt to carry cattle through on buffalo-grass alone. When it is necessary, however, sufficient range should be reserved close to water and ranch buildings for the cattle to run on during the later winter. Whenever a sudden change of feed or pasture is made, cattle should be well fed and watered before putting them on the new pastures, especially if there is a radical change of feed.

Two losses among feeding cattle were reported from feeding flaxseed chaff; a number of animals dying in each instance within a few hours after being fed the chaff. Ordinarily flaxseed chaff is considered excellent feed; but in both these instances the seed was not well matured, and it may have been in such a stage as to contain poison; it is possible, too, that the losses may have resulted from acute indigestion, caused by the sudden change of feed or overfeeding.

Among the diseases that are causing serious loss to the live-stock interests of this state are the following:

#### CONTAGIOUS ABORTION.

Abortion is the expulsion of the offspring from the womb before it is developed enough to live. Abortion may be due to bad feed, and especially the feeding of hay that contains ergot, which is a diseased grain found on wild rye or similar grasses. A lack of sufficient food, injuries, disease, purgative medicines or other strong drugs may also

cause abortion. Whenever abortion occurs among cows and cannot be traced to the above causes, contagious abortion is to be suspected.

Contagious abortion is quite common, and frequently causes serious losses among herds of breeding cows, not only from the loss of the young, but, also, because many animals that have aborted will fail to breed again.

Contagious abortion is caused by a germ, or several germs, and the disease is transmitted from one animal to another by contact, or by means of the discharge from the vagina of an animal that has aborted, the afterbirth, dead calf, etc. It also appears to be transmitted to healthy cows by a bull that has previously served a cow that has aborted. Infected water, food, stalls, trenches, posts, quarters, etc., may also be the means of spreading the disease.

*Symptoms.*—Cows may abort at any age of pregnancy, but it usually occurs after the fourth month. There are few preliminary symptoms; the first thing usually noticed is that the cow has aborted, as shown by the presence of a foetal calf or the discharge of blood, mucus, etc., that soils the tail and adjacent parts. When contagious abortion occurs among a herd of cows, all animals with a discharge from the vagina should be regarded with suspicion as having probably aborted. In some cases the udder becomes distended, and the vulva is often swollen. When a cow is well along in pregnancy the signs of abortion are those of parturition.

*Treatment.*—When a cow has aborted, or shows signs of abortion, she should be isolated from all other pregnant cows, the aborted calf and membranes burned or buried deeply, and the quarters thoroughly disinfected by removing and burning all litter, and then applying to the floors, manger and stalls a five-per-cent. solution of carbolic acid in water, or a solution of one part of corrosive sublimate dissolved in 1000 parts of water. Tablets of corrosive sublimate can be purchased of druggists with directions for use. After disinfecting the stall it should be whitewashed. Cows that have aborted should be washed out with a solution of one part of corrosive sublimate dissolved in 1000 parts of water, or a one-per-cent. solution of creolin once daily for two or three days, and then once in three days until all discharge ceases. No cow should be bred for a month after all discharge has ceased.

A remedy that has given excellent satisfaction in the treatment of contagious abortion is as follows: Flowers of sulphur, one pound; hyposulphite of soda, pulverized, two pounds; common salt, eight pounds. Mix well, and salt the pregnant animals two or three times a week, giving a small handful to each.

Cleanliness, isolation and thorough disinfection must be depended upon to combat this disease.

## SCAB OR ITCH IN CATTLE.

Scab or itch, sometimes called mange of cattle, is caused by a minute mite (*Psoroptes communis* var. *bovis*) that lives upon the surface of the skin and burrows in the epidermis. It does not attack other animals than cattle, although scab of sheep is caused by a similar parasite.

*Symptoms.*—Scab or itch does not trouble cattle to a great extent during the grazing season, when they are doing well on grass. Close observation is required to detect the disease in a bunch of cattle, but as soon as they are placed on dry feed, and cold weather sets in, the disease appears, and, if the cattle are not doing well, in an aggravated form. Scab usually attacks young cattle—calves, yearlings, and two-year-olds—but may attack cattle of any age if they are “out of condition.” The first symptom noticed is an intense itching of the skin, usually in the region of the neck or shoulders. The animals lick themselves, dig at the skin with their teeth or horns, rub against posts or barbed wire, often tearing the skin until it bleeds. The disease gradually spreads along the back, sides, and outsides of legs, but does not attack the inside of the legs, thighs, or thin skin of the abdomen. In the early stages the coat looks rough; there is a scurfy condition of the skin; the scurf becomes mixed with a gummy exudate and forms crusts in the hair, sometimes one-half inch thick; the hair then comes off or is rubbed off the badly affected area, leaving bald patches of thick, calloused, wrinkled skin. These patches often show first and prominently on the top of the neck, as if the neck had been calloused from wearing a yoke. After the hair comes off the parasites leave that part and the air grows in again. Animals suffering from the scab present a dejected and debilitated appearance, and fall away rapidly in flesh; they do not eat well, and spend a great deal of time and energy in scratching themselves.

Scab spreads quite rapidly through a bunch of cattle, especially if the cattle are not doing well. Six or eight weeks after the disease first makes its appearance is sufficient to disseminate the disease pretty thoroughly. Thrifty, vigorous animals resist infection longer than others; and recover more quickly under treatment than debilitated animals. The disease is spread by direct contact and by contact with infected posts, feed-racks, walls, etc., against which infected animals have rubbed. The mites will live from a week to ten days in protected places, but are quickly killed by direct sunlight.

By scraping off some of the scabs, and especially the epidermis, from the infected part and placing the material in a clean, dry glass bottle, in a few hours minute white specks, barely visible to the naked

eye, can be observed crawling on the inner surface of the bottle; by the aid of a hand lens these mites can be easily recognized.

*Treatment.*—As soon as the disease is discovered in a bunch of cattle, the affected animals should be isolated, and the infected quarters and the rubbing-posts disinfected with a five-per-cent. solution of carbolic acid. Affected animals should be well fed and cared for, and be salted with a mixture of one pound of flowers of sulphur mixed with ten pounds of common salt. To cure the disease, external treatment must be applied. If a large number of cattle are affected, the most satisfactory method is to build a dipping vat, through which the animals must swim in the dip used to destroy the mites. The vat should be forty feet long. Efficient remedies used for external application are some of the coal-tar products, such as carsul, chloro-naphtholeum, genoleum, creolin, etc. These are used in  $2\frac{1}{2}$ -per-cent. solutions with water; that is, one part of the medicine to forty parts of water. A very effective and cheap dip is composed of lime and sulphur in the following proportions:

Flowers of sulphur.....	21 pounds.
Unslaked lime.....	16 $\frac{3}{4}$ “
Water.....	100 gallons.

Slake the lime to form a thick paste, sift in the flowers of sulphur, and stir well; put this mixture in a kettle with twenty-five or thirty gallons of water and boil for thirty minutes at least; two hours is better. The chocolate-looking mass is allowed to settle, the clear liquid is drawn off, and water enough is added to make 100 gallons. All dips are more effective when used warm—100 deg. to 110 deg. F. Animals should be kept in the dip about two minutes, or until the scab is thoroughly saturated. A second dipping in two weeks will kill any mites that may have hatched from the egg after the first dipping. One dipping, if thoroughly done, is usually sufficient, however, to free a bunch of cattle from this disease.

Where only a few animals are affected, hand treatment can be resorted to, but it should be thoroughly done. The remedies can be applied with scrubbing brushes, cloths, or sponges, and all scabs and crusts should be thoroughly saturated. The remedy should be applied warm, as in dipping. In dipping or hand treating, warm, sunny days should be selected for treating the animals.

Cattle scab is rather common in some parts of the great plains region, and stockmen, in purchasing cattle, should be cautious about getting animals affected with this disease. While the death loss is usually not high, the loss of flesh, general deterioration and annoyance resulting from this disease are considerable. Cattle that have been treated should be carefully watched for a reappearance of the disease, especially when taken off of grass for the next season.

## CEREBRITIS OR "STAGGERS" OF HORSES.

Serious losses in this and adjoining states occurred during the fall and winter of 1901 and 1902 as a result of feeding wormy, moldy corn, either when it was fed as a grain ration, or when obtained by pasturing in the stalk fields, or when fed upon the cut corn-fodder.

The disease is an inflammation of the brain or spinal cord and its coverings (meninges) associated with a breaking-down of the nerve tissues of the brain. It is popularly called "stagger," or "mad staggers," because of the prominent symptoms shown.

*Symptoms.*—The symptoms are those of a brain disease. The animal appears blind and only partially conscious; there is often a tendency to turn in a circle to the right or left, and a staggering or straddling gait. There is usually a trembling of the muscles. As the disease progresses the animal becomes delirious and easily excitable. In many cases the animal will stand with the head or breast against a wall or manger and push. Animals will often eat when badly affected, apparently from force of habit, not because they are hungry. In some cases the animals will die in a few hours after they are first noticed ailing. Most of them die in a few days; a few live a week, rarely longer. In a few cases the spinal cord is diseased, while the brain remains nearly normal. In these cases there is an inability to control the muscles, or the animal may be unusually sensitive, the least irritation of the skin, even by touching the animal, often causing it to kick violently. Where the spinal cord only is affected the animal frequently recovers. Laxative food should be given, and iodide of potash in one-drachm doses dissolved in water can be given once daily for three or four days. Mules are rarely affected by this disease.

*Treatment.*—Practically all cases die when the brain is the seat of the disease, and all methods of treatment so far have proven of no value. The animal should be placed where it will be comfortable and cannot injure itself or other animals and supplied with soft, laxative food, such as thin bran mashes. The only treatment for the disease is prevention, by avoiding the wormy, moldy corn.

Care should be exercised in handling a horse to avoid injury, as the animal is irresponsible, and often in a delirious frenzy.

In some cases horses do not begin to die for a month after being turned into the stalk fields, and they may contract the disease in a week and in some cases ten days after the moldy corn has been withheld.

Moldy or wormy corn does not seem to be injurious to other animals, and can be fed to cattle and hogs without danger.



## GLANDERS AND FARCY.

Glanders and farcy are different forms of the same disease. When the disease attacks the mucous membrane of the nostrils it is called glanders; when the lymphatic glands of the body, especially of the legs, are attacked the disease is called farcy. Glanders is a contagious disease, caused by a germ (*Bacillus mallei*) that attacks horses, asses, and mules, and can be transmitted to other animals, including man, by inoculation through wounds, sores, or mucous membranes. The germs of glanders do not float through the air. The disease is commonly transmitted from a glandered horse by means of the discharge from the nostrils or sores. The discharge contains large numbers of germs of glanders, and may be transmitted to another horse, directly or by means of watering-troughs, feed-boxes, mangers, hitching-posts, equipment or utensils that may be infected with the discharge. It is possible that it may be carried by flies.

*Symptoms.*—Glanders may occur in a mild chronic form, in an acute form, or attacking the lymphatic glands in the form of farcy. In the early stages it is often difficult to recognize, especially in the chronic form. One of the first symptoms noticed is a discharge from one or both nostrils. At first the discharge is thin, sticky, and often resembles linseed oil; it dries about the nostril making it appear smaller than usual. As the disease progresses the discharge becomes more profuse, thicker, yellowish in color, and sometimes streaked with blood. The mucous membrane lining the nose, especially on the partition between the nasal chambers, becomes ulcerated. The ulcers are raw, depressed in the center, with reddish edges. In some cases the ulcers may perforate the partition between the nostrils. In severe cases the mucous membrane of the nose becomes bluish or slate color instead of a healthy pink. The lymphatic glands beneath the jaw usually enlarge, are firm to the touch, and often seem grown fast to the bone. These glands rarely gather and break as they do in distemper. As the disease progresses the animal falls away in flesh, gets out of condition, and the coat looks bad. In severe cases there is often excessive discharge of urine.

Where the disease attacks the lymphatic glands of the body it is called farcy. It is most frequently seen in the region of the hind legs, but may occur anywhere on the body. It usually begins with firm lumps forming beneath the skin, that may attain the size of a hickory-nut or larger, and often occur in a string up and down the inside of the hind leg, on the course of the large lymphatic vessels. These enlarged glands are commonly called farcy "buds." They often break, and discharge an amber-colored fluid that dries upon the hair. These sores do not heal readily and often show a tendency to spread.

Glanders and farcy are practically incurable, and all diseased animals should be destroyed and burned or buried deeply. In doubtful cases the disease can be recognized by injecting mallein (a chemical product of the glanders germ). If the horse has the disease there will be a rise of temperature of two degrees or more, with a well-defined swelling at the point of injection. All suspected animals should be carefully isolated from others and watered and fed from separate receptacles. Infected quarters should be thoroughly cleaned and disinfected by removing and burning all litter and similar material. Stalls, mangers and feed-boxes, neck-yokes, etc., should be cleaned and scrubbed with a solution of five per cent. of carbolic acid in water, and, when dried, should be whitewashed or painted. Equipment that cannot be burned can be disinfected by boiling for one hour. Persons caring for glandered horses should be careful not to contract the disease.

#### HOG-CHOLERA AND SWINE-PLAGUE.

During the year 1901, owing to the short corn crop and the limited shipment of hogs, losses from these diseases were quite small, but during the present season these diseases are quite prevalent.

Swine-plague is an infectious disease, characterized, principally, by an inflammation of the lungs; it is usually associated with hog-cholera, but may occur as a separate disease. It usually responds readily to hygienic and medicinal treatment; clean quarters, pure water, and a variety of easily digested, nutritious foods, together with mineral tonics, as recommended for hog-cholera, are excellent.

In true hog-cholera the intestines are the principal seat of the disease, although other organs and parts of the body are often attacked. In hog-cholera there is always violent purging at some stage of the disease; hog-cholera is caused by a minute germ that is easily carried from place to place by sick hogs, streams, wagons, persons, cars, etc.

Some bunches of swine are more susceptible to these diseases than others; especially is this true of Southern hogs that are shipped up and placed on a corn diet to which they are unaccustomed. In most instances such hogs contract the cholera and die, causing serious losses not only to the owner, but, as the disease usually spreads, to other hogs in the neighborhood. In shipping hogs in cars they probably become infected from cars, yards or chutes through which they pass.

Hog-cholera, like swine-plague, can be largely prevented by hygienic surroundings, good food and care; it is probable that parasites, intestinal worms and lice play an important part in predisposing hogs to cholera, either by infection or affording opportunities for the germs to enter the tissues. A variety of easily digested food, pure water, and

mineral elements, such as salt, sulphur, air-slaked lime, and charcoal, are excellent preventives for diseases of swine. The following is recommended by the Bureau of Animal Industry, at Washington, for the prevention and treatment of hog-cholera and swine-plague:

Wood charcoal.....	1 pound.
Sulphur.....	1 “
Sodium chloride.....	2 “
Sodium bicarbonate.....	2 “
Sodium hyposulphite.....	2 “
Sodium sulphate.....	1 “
Antimony sulphide (black antimony).....	1 “

These ingredients should be thoroughly mixed and completely pulverized.

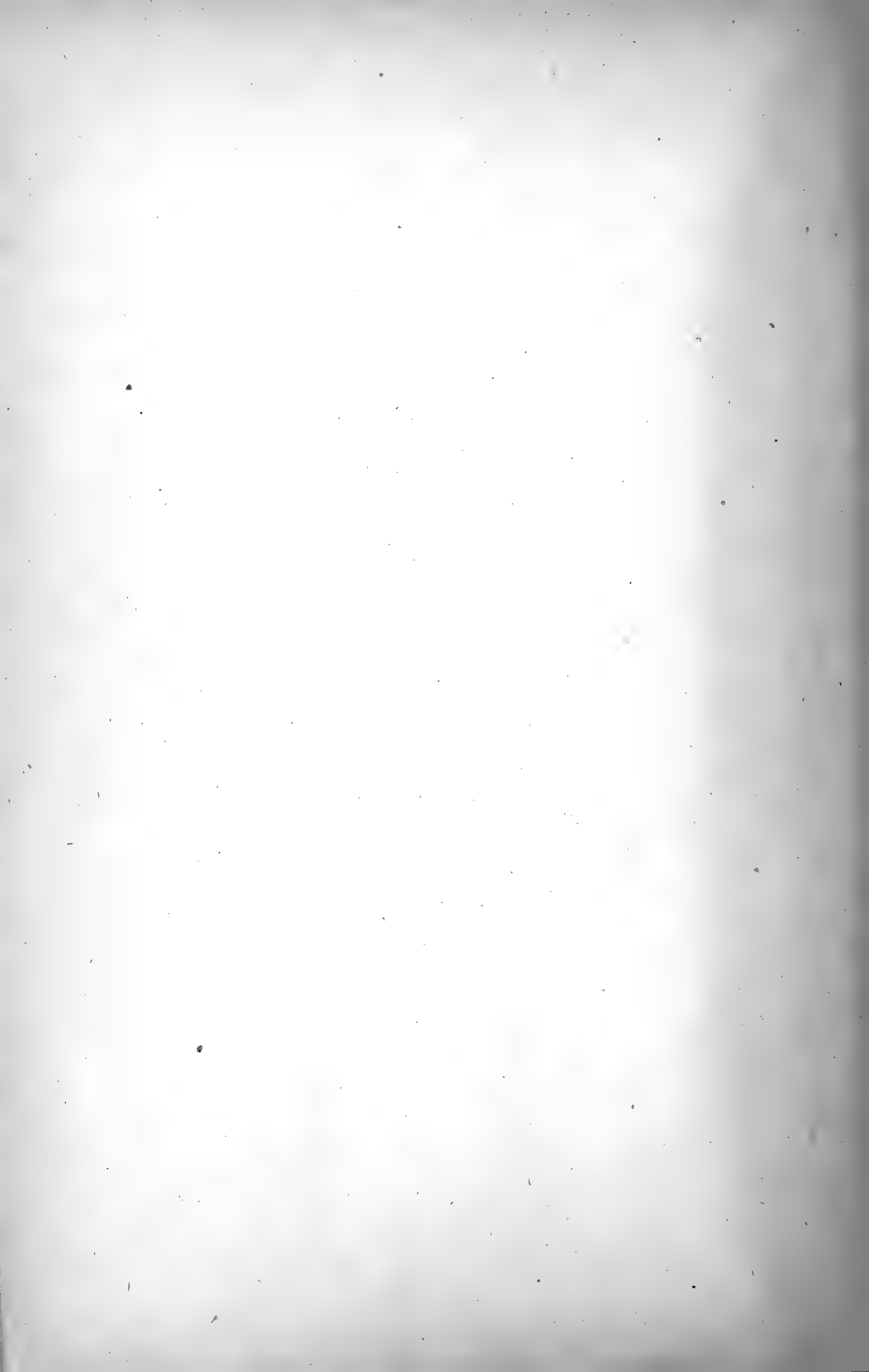
The dose of this mixture is a large tablespoonful for each two hundred pounds weight of hog to be treated, and it should be given only once a day. When hogs are affected with these diseases they should not be fed on corn alone, but they should have, at least once a day, soft feed, made by mixing bran and middlings and corn-meal, or ground oats and corn, or crushed wheat, with hot water, and then stirring into this the proper quantity of the medicine. Hogs are fond of this mixture; it increases their appetite, and when they once taste of food with which it has been mixed they will eat it, though nothing else would tempt them.

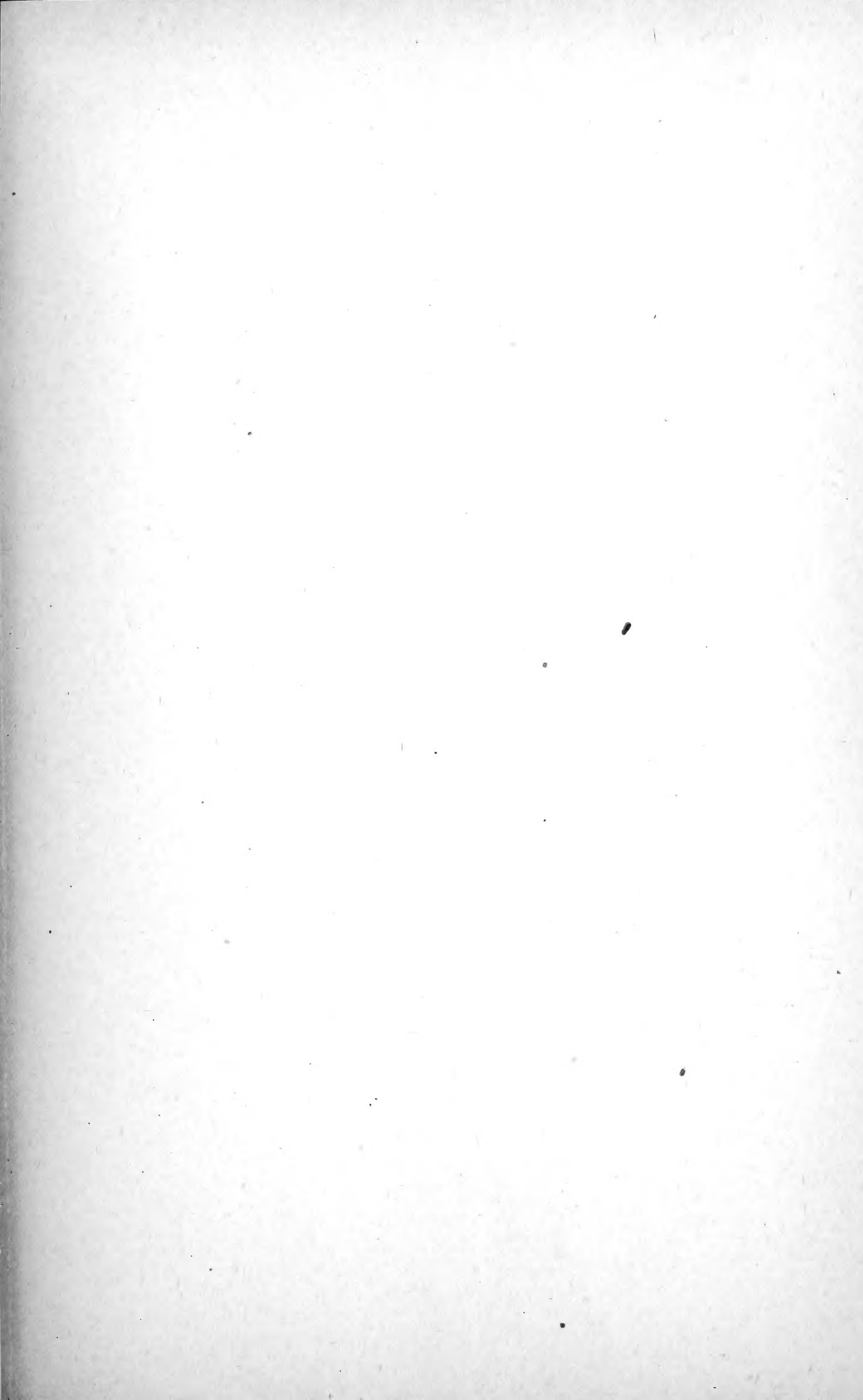
Animals that are very sick and that will not come to the feed should be drenched with the medicine, shaken up with water. Great care should be exercised in drenching hogs, or they will be suffocated. Do not turn the hog on its back to drench it, but pull the cheek away from the teeth to form a pouch, into which the medicine may be slowly poured. It will flow from the cheek into the mouth, and when the hog finds out what it is, it will stop squealing and swallow. In our experiments, hogs which were so sick that they would eat nothing have commenced to eat very soon after getting a dose of the remedy, and have steadily improved until they appeared perfectly well.

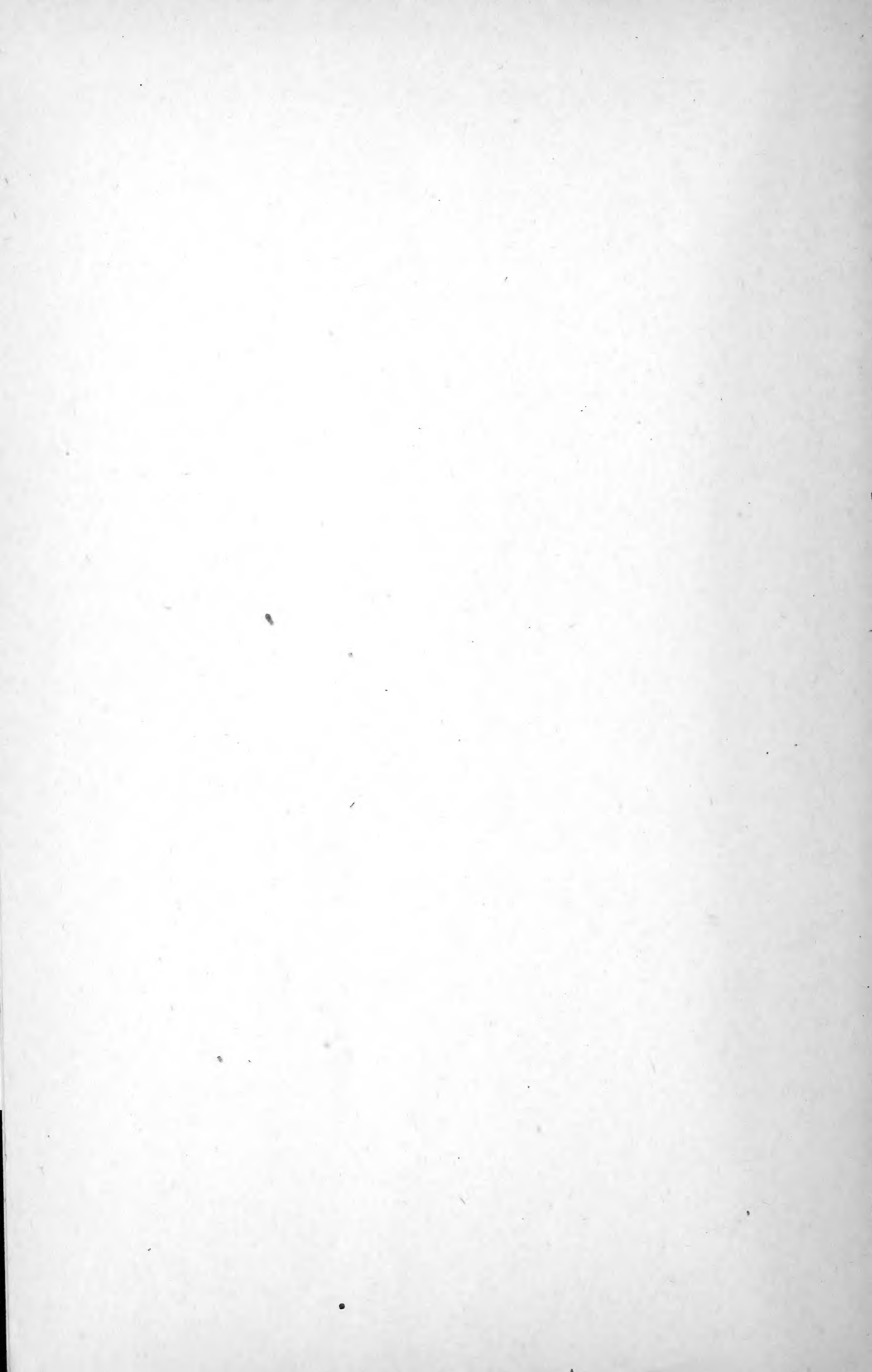
This medicine may also be used as a preventive of these diseases, and for this purpose should be put in the feed of the whole herd. Care, of course, should be taken to see that each animal receives its proper share. In cases where it has been given a fair trial, it has apparently cured most of the animals which were sick, and has stopped the progress of the disease in the herds. It also appears to be an excellent appetizer and stimulant of the processes of digestion and assimilation, and when given to unthrifty hogs it increases the appetite, causes them to take on flesh, and assume a thrifty appearance.

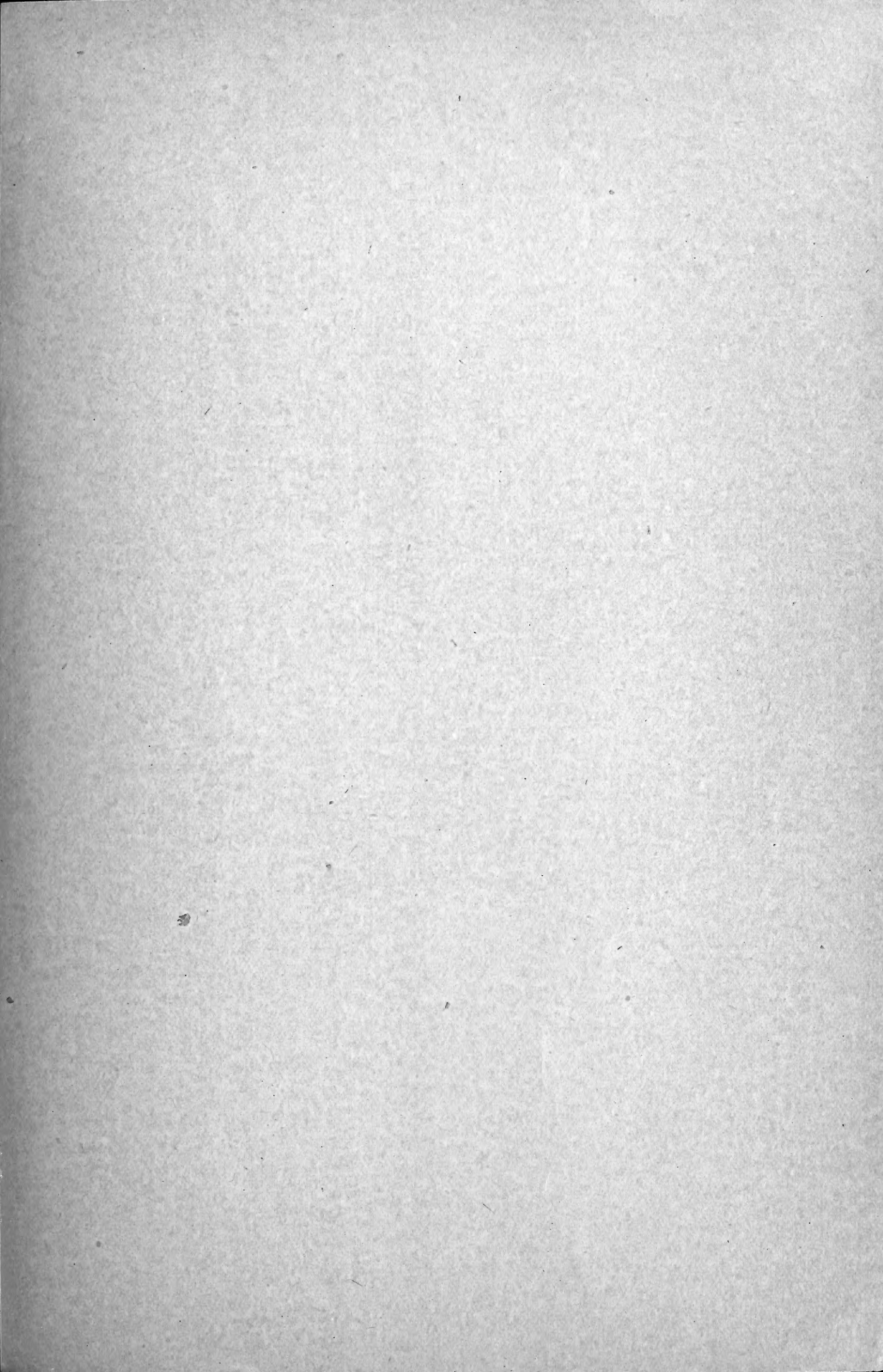
During the past thirteen months I have made thirty trips in response to your request to examine sick animals or to advise with your board. Respectfully submitted.

N. S. MAYO, *Veterinarian.*









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