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First Annual Report
OF THE
State Veterinarian.

Georgia.
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The advancement of civilization depends upon a prosperous
Agriculture.

Agriculture can only prosper when supported by a thriving,
profitable animal industry.

More cattle, hogs and sheep means more cotton, corn, grain
and forage upon less acres.

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U. S. F. B.
SEP 2 1964



FIRST ANNUAL REPORT
OF THE
STATE VETERINARIAN

Hon. Thos. G. Hudson, Commissioner of Agriculture, Atlanta, Ga.

Dear Sir:—Obedient to legislative mandate I submit herewith my first annual report. The act creating this office makes it the duty of the State Veterinarian to “investigate and take proper measure for the control of contagious and infectious diseases among the domestic animals within the State, under such rules and regulations as may be promulgated by him and approved by the Commissioner of Agriculture; to assume charge of the work of tick eradication, and to devote his entire time to the health and improvement of the Live Stock industry of the State; and he shall report upon his work annually, etc.”

Prior to the creation of this office (under the provisions of an Act of the Laws of 1906) I had the honor to be connected with your Department in the capacity of Chief Consulting Veterinarian; during which time I had the opportunity to acquire a fair acquaintance with the conditions and some of the infectious diseases that are met in the State of Georgia. This work, under the old law, was, of course, preliminary and very incomplete. Each investigation consisted of a clinical opinion and advice for the disposition of the case; in case of contagious diseases the attending Veterinarian was not even empowered to declare and enforce quarantine restrictions.

The law creating the office of State Veterinarian had been preceded by an act conferring upon the Commissioner of Agriculture the powers of Live Stock Sanitary control, but as no provisions were made for the administrative officer whose duty it would be to carry the law into effect little progress was made; therefore, upon my appointment I found the work before me unorganized. It is true, some systematic work had been conducted along the line of tick-eradication under the supervision of Mr. R. F. Wright, Assistant Commissioner and, bearing in mind that this work was in the main preliminary, the results were all that could have been expected. With this one exception the field was unexplored, the structure of

Live Stock Sanitary Control remained to be organized from the foundation.

After some deliberation, yet without delay, a set of rules and regulations were drafted and their practicability given a trial in actual application under Georgia conditions before they were submitted to the printer. (See Bulletin No. 5, Series A.)

These rules are but a plain preamble of the fundamental requirements in the suppression of infectious and contagious diseases, these basic principles have been found to be absolutely essential to success, in actual practice, wherever communicable disease have been suppressed by man's effort. Faithfully adhered to they will be found sufficient for our present need, tho special occasions will no doubt arise that demand more drastic rules.

In my review of the infectious, contagious and communicable diseases I have divided them into three groups:

First:—Infectious diseases affecting animals which are also transmissible to man.

Second:—Infectious diseases which affect animals specifically.

Third:—Parasitic infections of animals.

To avoid bulkiness this review must needs be brief.

In the first group we will consider: Tuberculosis, Rabies, Glanders, Anthrax.

In the second group we will consider: Tick Fever, Hog Cholera, Hemorrhagic Septicemia, Emphysematous Anthrax, Epizootic Spinal Meningitis, Epizootic Cerebro Spinal Meningitis.

In the third group we will consider: Parasitic infestations and intoxications.

TUBERCULOSIS.

Notwithstanding the fact that great publicity has been given to a campaign of suppression against this dread disease, statistics prove a steady increase in its distribution. As yet the infection of all the cattle within the State will hardly prove more than 7 per cent.; the infection being principally among the dairy herds into which the disease has been introduced by cattle from other states. A careful supervision of all cattle imported for dairy and breeding purpose will be of material benefit in preventing the increase and spread of the infection; but, if we expect to control the spread from infected herds within the State, we must adopt most stringent means to lo-

cate the diseased herds within our commonwealth and then restrict the traffic in reacting animals. It would be good business policy to brand or otherwise mark all reactors in order that any purchaser may be aware that the animal so marked, or branded, is tuberculous.

To encourage breeders and dairymen to have and keep their herds free of tuberculosis it would, perhaps, be good policy to issue to those who have and maintain herds free of tuberculosis—as proven by an official tuberculin test—a “State Certificate” setting forth such fact. Such certificate to make it obligatory upon the owner not to introduce cattle into this herd unless they have been regularly tested with tuberculin; and to have the entire herd retested once a year in order to determine that tuberculosis is not present.

In this work of eradicating tuberculosis all cities which have a regular Health Department should take an active part. Their cooperation is absolutely essential to successful supervision.

Without any special funds available for the suppression and eradication of tuberculosis among cattle I have only been able to make a few investigations. These were confined to some of the larger dairy herds and in each instance we found the herd infected.

The herd of — — M. in Putnam county showed three reactors out of 57 tested. The herd of — — Z. near Atlanta showed 24 reactors out of 42 tested,—19 out of 24 milk cows proved tuberculous, two of these reactors—apparently in good health—proved tuberculous upon post mortem thus vindicating the reliability of the test. The herd — — D. of Putnam county responded with 10 reactors out of a herd of 55 head.

A few years ago Prof. C. L. Willoughby conducted several tests for the Georgia Experiment Station and after a number of tests in different parts of the State gave it as his opinion that the dairy herds of the State were infected about 20 per cent; this I think is a fair estimate. Tuberculous infection among range cattle is rather rare and I feel therefore safe in my opinion that not over 7 per cent. of all the cattle in the State are affected with tuberculosis.

In 1909 the American Veterinary Medical Association appointed an International Commission to study methods of control of bovine tuberculosis. The results of their investigation has been published in pamphlet form and I take the liberty to reproduce their final conclusion in full.

THE CONTROL OF BOVINE TUBERCULOSIS.

(Report of the International Commission of the American Veterinary Medical Association.)

INTRODUCTION.

The greatest problem confronting the live-stock industry is the increasing prevalence of tuberculosis among cattle and hogs and the necessity of adopting measures for suppressing and controlling this disease. A careful estimate made by the writer for the International Congress on Tuberculosis in 1908 showed that tuberculosis of animals exacts a toll of over \$23,000,000 annually. Of even greater moment than this tremendous economic loss is the sacrifice of human life and the impairment of human health from tuberculosis, almost universally regarded by scientific investigators to be due in some considerable degree to the existence of tuberculosis in animals from which milk and other foods are derived.

No one who is informed on the subject can fail to realize that something should be done to check the rapid spread of tuberculosis among cattle and hogs and to control and eventually to eradicate the disease. As this disease in hogs is nearly always contracted from tuberculous cattle, it is believed that if bovine tuberculosis were suppressed swine tuberculosis would soon disappear; hence our main attack must be directed against the disease in cattle. Efforts have been made for some years to combat bovine tuberculosis, and while some headway has been made in some sections and localities, in general the disease has continued to spread, and on the whole it appears that the progress of the disease has been more rapid than the progress of the work against it. The time has come when something should be done in a more definite, systematic, and practical way and on a larger scale. However difficult may be the task of controlling and eradicating tuberculosis, the problem is constantly becoming more difficult as the infection becomes more widespread. It is much easier to deal now with a disease affecting on the whole about 5 per cent of our cattle than it will be to combat it later if we permit it to spread until it affects 40 or 50 per cent, as is the case in some parts of Europe.

Recognizing the gravity of the situation, the American Veterinary Medical Association at its annual meeting at Chicago in September, 1909, created an international commission to study methods of

control of bovine tuberculosis, with instructions to submit a report at the next annual meeting. The commission as first appointed was as follows: Dr. J. G. Rutherford, Hon. W. C. Edwards, Mr. J. W. Flavelle, Hon. W. D. Hoard, Dr. C. A. Hodgetts, Dr. John R. Mohler, Dr. V. A. Moore, Dr. Leonard Pearson, Dr. M. H. Reynolds, Dr. E. C. Schroeder, Mr. Louis F. Swift, and Dr. Frederick Torrance. The commission first met at Buffalo, N. Y., December 13 and 14, 1909, and organized by electing Dr. Rutherford as chairman and Dr. Reynolds as secretary. Owing to the death of Dr. Pearson and the inability of Mr. Swift to serve, the writer, as president of the association, appointed in their places, respectively, Dr. M. P. Ravenal and Dr. T. W. Tomlinson. Later, at the request of the commission, he also appointed Mr. J. J. Ferguson as a representative of the United States packing industry and Dr. J. N. Hurty as a representative of the medical health officers of the United States.

The commission comprised in its membership not only veterinarians, but physicians and representatives of the stock-raising, meat-packing, and dairy interests—scientists, professional men, and practical men of affairs—five from Canada and nine from the United States. The body was thus exceedingly well qualified to consider the subject in a broad way and from the various points of view.

After four meetings of the commission and several conferences of subcommittees, and as a result of thorough consideration of the subject by the members, the commission presented its report at the annual meeting of the American Veterinary Medical Association at San Francisco in September, 1910. This report, which appears in the following pages, recommends and outlines definite plans and policies for the control of bovine tuberculosis. Besides stating important facts about the disease, it points out the necessity for education and legislation, describes methods for handling cattle by breeders and dairymen, and proposes administrative measures to be followed by public officers. It is believed that these recommendations are practical, and that they point the way to more effective warfare against this great common plague of animals and man.

A. D. MELVIN,

President American Veterinary Medical Association, 1909-10.

REPORT OF THE INTERNATIONAL COMMISSION ON THE CONTROL OF BOVINE TUBERCULOSIS.

To the President of the American Veterinary Medical Association :

Owing to the great economic and sanitary significance of animal tuberculosis to the live-stock industry of America and the many and varied factors which must of necessity be accounted with in formulating successful measures for its eradication, the American Veterinary Medical Association, at its meeting in Chicago in September, 1909, appointed the International Commission on the Control of Bovine Tuberculosis. The commission was instructed to study the problem of tuberculosis among cattle and to report at the next meeting of the association upon reasonable and economically practicable methods or systems to be recommended to both officials and live-stock owners for eradicating this great scourge of domesticated animals.

It is recognized that tuberculosis is widely prevalent among cattle and other animals, and that the frequency with which this great evil occurs is increasing rather than declining. As tuberculosis is one of the strictly preventable infections, there is good ground for the belief that through the formulation and enforcement of proper regulations the disease may eventually be entirely suppressed.

The commission has held four meetings, as follows: Buffalo, N. Y., December 13 and 14, 1909; Detroit, Mich., March 1 and 2, 1910; Ottawa, Canada, May 19, 20, and 21, 1910; Madison, Wis., June 27 and 28, 1910; all of which were well attended, very few of the members having on any occasion been absent. The commission begs to present as a result of its labors the following report, which, although brief, will on examination be found to comprise the principal points essential to the promulgation of a comprehensive and practical policy, such as may reasonably be adopted by any governmental body interested in the control of bovine tuberculosis.

It is quite unnecessary, in view of the extensive knowledge already possessed by all who are familiar with the efforts which have hitherto been made to secure control of bovine tuberculosis, to dwell at any length upon the importance of the subject or upon the conditions which led to the formation of the commission.

In view of the personnel of the commission as selected by the American Veterinary Medical Association, and of the fact that so much information on the subject has been made available through the

work of similar bodies in other countries and the researches of scientific and practical men in America and elsewhere, the commission has not deemed it necessary to take any evidence either from expert witnesses or others.

The members fully understood that the purpose which their appointment was intended to serve was less the acquisition of new knowledge regarding bovine tuberculosis than the careful study of the knowledge already available and of the thoughts and opinions of those most entitled to speak with authority on the subject.

The conclusions reached in this report are therefore simply the outcome of an earnest and thoughtful consideration of the various modern aspects and phases of the problem, with the object of crystallizing public opinion and so clearing the way for legislative action. They realized also that they could deal with fundamental principles only, and that the details of any policy which they might outline must in each case be worked out by the duly authorized and responsible representatives of the community immediately concerned. They nevertheless deemed it essential to study closely the history of the various efforts hitherto made by such countries throughout the world as have attempted to legislate on the subject. This naturally led to the gradual elimination of all methods other than such as might reasonably be adopted by any community desiring, in the full light of present-day knowledge, to undertake the control of bovine tuberculosis.

It was felt, in view of the prevalence of the disease, especially in some localities and among certain classes of cattle, the difficulty of providing a sufficient number of trained officials, and the large economic questions involved, to say nothing of the enormous expenditure, that it would be unwise, for the present at least, to discuss seriously a policy of universal compulsory testing and slaughter. Such a policy might perhaps be adopted with advantage by a small community, or one in which the disease existed to a very limited extent; but speaking generally, especially in view of past experiences in this line, it was thought better to omit it entirely from the recommendations of the commission.

All other methods of dealing with bovine tuberculosis which have been recommended or tried in various communities were thoroughly discussed, with the object of discarding weak points and adopting such features as might be deemed worthy of a place in the official findings of the commission. Every phase of the subject was in this

way fully and freely considered, it being thought best to cover the whole ground as completely as possible before coming to a definite decision on any one point. In order to minimize still further the risk of omitting from the deliberations of the commission any phase of the question, four committees were appointed at the first meeting to deal respectively with—

1. Education and legislation.
2. Location of tuberculosis.
3. Dissemination.
4. Disposition of tuberculosis animals.

The appointment of these committees proved to be of the greatest possible value in concentrating the energies of the various members on those branches on the subject with which they were most familiar, and their reports presented at subsequent meetings enabled the commission to reach satisfactory conclusions much more rapidly than would otherwise have been the case. As a means of furnishing information as to the reasons for these conclusions and the manner in which they were reached, the commission would recommend that the reports of the committees should be published as an appendix to this report.

The commission, recognizing after careful study that the tuberculin test is the fundamental factor in any policy having for its object the control of bovine tuberculosis, decided that a pronouncement to that effect should properly occupy a foremost place.

Based on the information contained in the reports of its committees and on such other information as was brought out in the general discussions of the commission, the following resolutions were adopted for presentation to the American Veterinary Medical Association:

RESOLUTION 1.—DISSEMINATION.

As a general policy to be observed, all contact between tuberculous and healthy cattle and between healthy cattle and stables, cars, etc., which may contain living tubercle bacilli should be prevented. To accomplish this the following specific recommendations are made:

1. There should be no sale or exchange of animals affected with tuberculosis except for immediate slaughter or for breeding purposes under official supervision.

2. That the management of live-stock shows should give prefer-

ence to cattle known to be free from tuberculosis, either by providing special classes for such cattle or in some other practical way, and should also take every precaution to prevent contact between such animals and those not known to be free from disease.

3. All live-stock shippers should take every precaution to see that cars furnished are thoroughly cleansed and disinfected before use.

RESOLUTION 2.—TUBERCULIN TEST.

1. That tuberculin, properly used, is an accurate and reliable diagnostic agent for the detection of active tuberculosis.

2. That tuberculin may not produce a reaction under the following conditions:

(a) When the disease is in a period of incubation.

(b) When the progress of the disease is arrested.

(c) When the disease is extensively generalized.

The last condition is relatively rare and may usually be detected by physical examination.

3. On account of the period of incubation and the fact that arrested cases may sooner or later become active, all exposed animals should be retested at intervals of six months to one year.

4. That the tuberculin test should not be applied to any animal having a temperature higher than normal.

5. That any animal having given one distinct reaction to tuberculin should thereafter be regarded as tuberculous.

6. That the subcutaneous injection of tuberculin is the only method of using tuberculin for the detection of tuberculosis in cattle which can be recommended at the present time.

7. That tuberculin has no injurious effect on healthy cattle.

RESOLUTION 3.—EVIDENCE FROM TUBERCULIN TEST.

That a positive reaction to tuberculin in any properly conducted test, official or otherwise, in any animal in any herd shall be considered evidence sufficient upon which to declare the herd to be infected.

RESOLUTION 4.—COMPULSORY NOTIFICATION.

That this commission recommends the passage of legislation providing for the compulsory notification by owners and by veterinarians

of the existence of tuberculosis in a herd, whether such existence be made known by detection of clinical cases or by tuberculin test.

RESOLUTION 5.—LOCATION THROUGH SLAUGHTER.

This commission recognizes that the discovery of tuberculosis in animals slaughtered for food purposes furnishes one of the best possible means of locating the disease on the farm, and therefore recommends the adoption of some system of marking, for purposes of identification, all cattle 3 years old and over, shipped for slaughter.

As tuberculosis of hogs is almost invariably due to bovine infection, recommendation should also be made to apply to hogs of any age shipped for slaughter.

It is further recommended that the discovery of tuberculosis in animals coming under Government inspection should be used, whenever identification is possible, as a means of locating infected herds and premises. All such cases should be reported to the proper authorities for control action.

RESOLUTION 6.—DISPOSITION OF TUBERCULOUS ANIMALS.

THE COMMISSION PLAN.

1. As a general policy in the eradication of tuberculosis the separation of healthy and diseased animals and the construction of a healthy herd are recommended. In order to accomplish this the following recommendations are made:

(1) If the herd is found to be extensively infected, as shown by the tuberculin test or clinical examination, even the apparent healthy animals in it should be regarded with suspicion until they have been separated from the reacting animals for at least three months. If after the expiration of this time they do not react to the tuberculin test, they may be considered healthy and dealt with accordingly.

It is recommended that a herd extensively infected should not be treated by the method of general separation, but that the construction of a new herd from the offspring only is advisable.

(2) If the herd is found by either or both of the above methods to contain a relatively small proportion of diseased animals, separation of the diseased animals from the healthy animals and the con-

struction of a sound herd from the healthy animals and the offspring of both are advocated.

As a working basis in carrying out these principles, we advise:

(a) That herds containing 50 per cent or more of diseased animals be treated as coming under section (1).

(b) That herds containing under 15 per cent of diseased animals be treated as coming under section (2).

(c) That herds falling between these figures be graded according to the option of the owner.

(d) That it shall be the prerogative of the owner to reject either plan and have his herd dealt with by removal and slaughter of diseased animals, with or without compensation, according to the public policy in operation.

2. That when by any means the officials properly charged with the control of tuberculosis become aware of its existence in a herd to which a policy of slaughter and compensation can not reasonably be applied, such herd must be dealt with by the owner, under Government supervision, on the principle of the separation of all sound animals from those affected. Such separation must be effected by treating the whole herd as diseased, and rearing the calves separately, either on pasteurized milk or the milk of healthy cows, or, when the number of those affected is so small as to warrant such a course, by the application to the whole herd, from time to time, under official supervision, of the tuberculin test, and the entire segregation of all animals found to react. In the event of any owner refusing or neglecting to adopt either of the above methods, his entire herd to be closely quarantined and sales therefrom to be entirely prohibited.

3. That a policy of compensation be recommended as useful and usually necessary as a temporary measure.

4. That when slaughter is necessary, in order to avoid economic loss, every effort should be made to utilize as far as possible the meat of such animals as may be found fit for food on being slaughtered under competent inspection.

5. The details of the commission plan will be found fully set forth in the appendix to this report.

RESOLUTION 7.—PREVENTION.

1. That with the object of preventing the spread of infection persons buying cattle for breeding purposes or milk production should,

except when such purchases are made from disease-free herds which have been tested by a properly qualified person, purchase only subject to the tuberculin test. In order to assist in the proper carrying out of this suggestion, the commission recommends that official authorities should adopt such regulations as will prevent the entry to their respective territories of cattle for breeding purposes or milk production unless accompanied by satisfactory tuberculin test charts.

2. That all milk and milk by-products used as food should be properly pasteurized unless from cows known to be free from tuberculosis.

RESOLUTION 8.—CONTROL OF TUBERCULIN TEST.

That this commission recommends the passage of legislation which will prevent the sale, distribution, or use of tuberculin by any person other than those acting with the full knowledge or under the direction of official authorities.

RESOLUTION 9.—EDUCATION.

As a clear knowledge of the cause and character of tuberculosis among animals, the modes of dissemination, and its significance as an economic and as a public-health problem underlie an intelligent adherence to the principles that must be observed in all efforts for eradication, as well as the establishment of proper cooperation in the great work between physicians, veterinarians, live-stock owners, legislators and the public generally, it is recommended that a widespread campaign of education be undertaken. To accomplish this end it is recommended that, first of all, a simple pamphlet on bovine tuberculosis be written, in which the language used shall be of such character that every person of average intelligence shall be able to read it without being mystified by technical terms or phrases. This pamphlet should be published with the indorsement of the American Veterinary Medical Association and the special indorsement and consequent authority of the International Commission on Bovine Tuberculosis Control.

RESOLUTION 10.—PUBLICITY.

In concluding its work, the commission desires to appeal espe-

cially to the press—metropolitan, agricultural, and local—to join in the work of extending as much as possible among the people the conclusions here arrived at. The vital importance of the life of farm animals to the welfare of all classes of society needs no argument in its support. The aim and sole purpose which has actuated this commission has been to arrive at the soundest conclusions possible in the light of the best knowledge obtainable.

RESOLUTION 11.—LEGISLATION.

It is recommended that legislation regarding the control and eradication of tuberculosis among domestic animals be made uniform; that the laws of the United States and Canada and other American countries for the admission into America of animals from without be made stringent and as much alike as possible; and that the laws governing the interstate and interprovincial movement of cattle and that between different American countries be harmonized.

The laws governing interstate and interprovincial movement of cattle should be of such character that every State and every province will be free in its eradication work from unnecessary difficulties due to the existence of the disease in other States and provinces.

Legislation is especially required to prevent the various frauds which interfere with the satisfactory use of tuberculin as a diagnostic agent for tuberculosis, as well as for official supervision over all tuberculin sold to be used by veterinarians and others.

RESOLUTION 12.—SANITATION.

In the eradication of tuberculosis it should be kept in mind that, in addition to protecting animals against exposure to tubercle bacilli, it is desirable to make them as resistant to infection as possible. This can be done by stabling them in clean, disinfected, and properly ventilated and lighted barns, giving them abundant clean water and nutritious food, a sufficient amount of daily exercise in the open air, and attending generally to those conditions which are well known to contribute to the health of animals.

The daily removal of manure from stables, and water-tight floors and good drainage in stables are urgently recommended.

Young stock, particularly, should be raised as hardy as possible and should be accustomed to liberal exercise and living in the open.

RESOLUTION 13.—IMMUNIZATION.

That as none of the various methods for the immunization of animals against tuberculosis have passed sufficiently beyond the experimental stage, the commission is unable to indorse any of these for practical use at the present time.

RESOLUTION 14.—ANIMAL TUBERCULOSIS AND PUBLIC HEALTH.

While the members recognize that the subject with which this commission is primarily intended to deal is the control and eradication of tuberculosis among animals as an economic problem, they can not feel satisfied without declaring their recognition of the fact that tuberculosis among animals is also an important public-health problem. Considered as such, the eradication of tuberculosis among animals should have the approval and support of all those persons who are interested in curtailing human suffering and prolonging human life.

RESOLUTION 15.—GENERAL STATEMENT.

The members of this commission wish to be clearly understood that they recognize the limitations of a report necessarily based on actual and not theoretical conditions. They fully realize that in the event of the policy of which their recommendations form the framework being anywhere adopted even in its entirety, much greater benefit will be derived, at least for some time, from its educative than from its executive features. The control, to say nothing of the eradication, of bovine tuberculosis, is impossible of achievement without the hearty cooperation of all the men who are actually engaged in the cattle industry. In order to secure this cooperation, it will doubtless be necessary in most communities to carry on an active and prolonged educational campaign.

It is apparent that in the dissemination of practical and reliable information regarding the disease it will be possible to employ a very large variety of methods. Many of these methods, such as bulletins, lectures, and actual demonstrations of disease, having already been found valuable, will doubtless continue to be largely used. It must not be forgotten, however, that in this, as in any other educative

process, a measure of disciplinary control is essential to success. Needless to say, such control can be secured only by the passage of legislation which, while clear and comprehensive, must at the same time be sufficiently conservative to avoid exciting alarm or arousing antagonism on the part of owners, especially of valuable herds. The best law ever framed can be made an utter failure by stupid or injurious administration, while, on the other hand, the most drastic legislation can be rendered acceptable if enforced with reasonable tact and diplomacy. Provided, therefore, that these qualities, combined with integrity, thoroughness, and determination, are available for administrative purposes, the members of the commission are convinced that the enforcement of a law based on their recommendations will prove to be by far the most powerful and effective educational agency which could possibly be employed.

In concluding its report the commission would suggest that the association should make such provision as may be necessary to carry on the work either by continuing the commission as at present constituted or with such changes in the personnel as may be considered desirable.

WM. C. EDWARDS.	V. A. MOORE.
J. N. HURTY.	F. TORRANCE.
E. C. SCHROEDER.	W. D. HOARD.
J. J. FERGUSON.	MAZYCK P. RAVENEL.
J. R. MOHLER.	CHAS. A. HODGETTS.
T. W. TOMLINSON.	J. G. RUTHERFORD, <i>Chairman.</i>
J. W. FLAVELLE.	M. H. REYNOLDS, <i>Secretary.</i>

It is hardly necessary to add to this brief, yet complete report offered by such unquestioned authorities on the subject. I shall only reiterate the points which to my mind are most essential, and which in my humble opinion ought to be enacted into law without delay.

1st. Since bovine tuberculosis is transmissible to man: The use of tuberculous cattle in dairies should be prohibited by law, and violations should be punishable by fine, or imprisonment, or both.

2nd. No cattle, with possibly the exception of steers for feeders and cattle shipped for immediate slaughter (such slaughter to be restricted to abattoirs which are under proper health inspection) should be permitted to enter the State unless accompanied by a re-

liable tuberculin test which proves such animal or animals free of tuberculosis.

3d. The distribution, sale and use of tuberculine within the State should be under the supervision of the State Veterinarian; and it should be mandatory for every owner or Veterinarian to report the results of such test within the State to said State Veterinarian.

4th. The fraudulent use of tuberculin, whether in intra-state or inter-state test, should be promptly and vigorously prosecuted; Veterinarians guilty of such fraudulent practice should have their license to practice revoked.

5th. The slaughter, for food consumption, of cattle reacting to the tuberculin test should be restricted to slaughter houses which are under the supervision of Veterinary Inspectors.

6th. All tuberculin reactors should be branded in order that every purchaser may know what he is buying.

With these points covered by law the control and eradication of bovine tuberculosis is merely a matter of enforcing the law.

Some States have found a system of partial reimbursement to the owner a great benefit to the work. No doubt, a plan could be evolved in which the State and the county would share in such reimbursement, thus more justly placing the cost where the benefit is to be derived.

HYDROPHOBIA.

This Department has not heretofore concerned itself with the suppression of Hydrophobia because of the almost incomprehensible indifference on part of the people toward this infection. But the alarming spread of this horrible disease within the past few years demands that every Department of Health and Sanitation within the State should take up the work in earnest.

It is no longer a question: Is rabies a specific infectious disease and, if so, is it communicable to man? The large number of human sacrifices which have paid the penalty of our neglect answer those questions unequivocally.

The production and free distribution of the Pasteur treatment by the State Board of Health is a move in the right direction and has been a great boon to the people. However, we can not afford to allow the dog to spread the infection without restraint, hoping to prevent fatal terminations of the infection by a course of anti-rabic treat-

ment. Common sense demands that we should adopt such measures of restriction as may be necessary for safety.

These measures may be summed up:

1st. An adequate dog-tax; a destruction of all homeless or vagrant dogs.

2nd. The muzzling of all dogs which appear upon the street or in public places, not for 60 or 90 days—but for all time.

Now, I know, this is not a popular movement and yet: I yield to no man in admiration of the dog, not even the silver-tongued statesman of Missouri—Senator Vest—who penned his classic “Eulogy to the Dog.” But, when “Man’s Friend,” the dog, by reason of an incurable, yet preventable disease imposes on the confidence and privilege of companionship bestowed upon him and during the hallucinations, which are so prominent a symptom of Rabies, infects the innocent and helpless children with a most horrible disease then I believe it is high time to impose such restriction upon the dog as may be necessary to secure the safety of humanity. Friendship for the dog, when placed in the balance against the safety of the human family, must certainly not be permitted to overshadow our duty to our fellowman.

The restrictions previously alluded to should be enacted a law and the various county and municipal officers should be required by law to see the provisions of the Act carried into effect.

A few statistics on the subject are here introduced to impress the need of action in this matter.

*“The following table, prepared by Kerr and Stimson, of the United States Public Health and Marine-Hospital Service, gives a partial list of the number of laboratory diagnoses of rabies found in 1908 at the various institutions interested in the investigation of this disease. They call attention to the fact that these figures represent in many instances only a small proportion of the actual number of cases of rabies occurring in the various States. For example, while only 47 cases of rabies have been actually demonstrated in Wisconsin, the State veterinarian estimates that 584 animals died of this disease during 1908.

(*) Farmers Bulletin 449 by Dr. John R. Mohler.

Positive findings of rabies in animals, 1908.

Diagnosis made by—	Number
Delaware State Board of Health laboratory.....	7
Connecticut State Board of Health laboratory.....	14
Florida State Board of Health laboratory.....	20
Indiana University, Bloomington, Ind.....	12
Indiana State Board of Health laboratory.....	75
Baltimore (Md.) Pasteur Institute.....	74
Massachusetts cattle bureau	135
University of Michigan Pasteur Institute.....	101
New Hampshire State Board of Health.....	7
New Jersey State Board of Health.....	13
New York Pasteur Institute.....	60
North Carolina State laboratory of hygiene.....	21
Vermont State Board of Health.....	2
Wisconsin State hygienic laboratory.....	47
New York State Veterinary College.....	188
Minnesota State live-stock board.....	15
Bureau of Animal Industry, Pathological Division, Washington, D. C	121
Cleveland health department, east side.....	49
Pennsylvania State live-stock sanitary board.....	103
Ohio State Board of Health laboratories.....	32
Virginia Pasteur Institute, Richmond, Va.....	39
Biological laboratories, Brown University, Providence, R. I.....	32
Total.....	1,167

In a letter from former State Veterinarian Langley he states that Texas probably has more rabies than any other State in the Union. Several years ago President Frank Wells, of the Michigan State Board of Health, made rabies largely the subject of his annual address and declared it was epidemic in Michigan. Vaughan, who reported as a special committee on rabies, intimated that it had gradually spread from New York, where it had prevailed for a number of years previously, into Ohio and thence to Michigan, having been dif-fused throughout the Lower Peninsular of Michigan. In fact, the disease became so widespread and so many people were bitten that the State appropriated funds for the establishment of a Pasteur institute in connection with the medical department of the University of Michigan. A Pasteur institute was likewise established in April, 1908, in Washington, D. C, in connection with the Hygenic Laboratory of the United States Public Health and Marine-Hospital Service, owing to the continued outbreak of rabies in that vicinity and the large number of people bitten by rabid animals, 139 persons having been treat-

ed since its establishment. In addition, there are 18 other Pasteur institutes in the United States, located at Atlanta, Ga.; Austin, Tex.; Baltimore, Md.; Chicago, Ill.; Iowa City, Iowa; Jacksonville, Fla.; Minneapolis, Minn.; Montgomery, Ala.; Newark, Del.; New Orleans, La.; Pittsburg, Pa.; Raleigh, N. C.; Richmond, Va.; St. Louis, Mo.; two in Indianapolis, Ind.; and two in New York City.

As an indication of both the distribution and the prevalence of rabies among animals may be considered the number of persons who have been treated at these institutes. The directors of these Pasteur institutes have been requested to furnish this information, and the majority have responded. From these reports it is evident that several thousand people have been subjected to the Pasteur treatment recently, and hundreds (nearly 1,500 persons in 1908) receive the treatment every year as a result of bites inflicted by rabid animals. At the Pittsburg institute 1,022 persons from Canada, Ohio, Pennsylvania, New York, West Virginia, and Colorado have received treatment, as follows:

From December, 1900, to September, 1902, 76 caeses.

From October, 1902, to October, 1904, 143 cases.

From October, 1904, to October, 1906, 185 cases.

From October, 1906, to October, 1908, 368 cases.

From October, 1908, to June, 1909, 250 cases.

The Texas institute, under State control, has been established less than 5 years, but the number of persons who have applied for treatment has gradually increased from 81 in 1905 to 254 in 1906, 310 in 1907, and 353 in 1908, these patients coming from 7 Southwestern States and old Mexico.

At the St. Louis institute 381 persons have been treated, coming from 11 Southern and Central Western States and from Mexico.

Since 1890 the Chicago institute has treated 3,016 people, coming from 30 different States of the Union.

ST VET—SEVEN ETAOINN SHRDLUUCMFWYP VPB KQGETAON'IA
At the New York institute (Rambaud's) 1,367 cases were treated between 1890 and 1900, 237 cases in 1900 and 1901, and 486 cases from October, 1904, to October, 1906.

Brawner, of the Georgia institute, has treated 670 patients since 1900, with only 2 deaths. During this time all the people in Georgia bitten by rabid animals so far as could be learned, and who did not take the treatment, were recorded, and of the 120 bitten without subsequent treatment

29 have died. Rabies is said to be very much on the increase in that section, and it is not uncommon for farmers to lose many horses, cows and hogs from the disease.

At the Baltimore institute 1,092 cases have been treated, 334 of which came from Maryland, 117 from North Carolina, 102 from Pennsylvania, 104 from Virginia, 112 from West Virginia, 57 from the District of Columbia, and the remainder from 13 other States.

Since 1901 the Richmond institute has treated 208 cases, coming from Virginia, North and South Carolina, and West Virginia.

As a further indication of the number of persons bitten but who did not take the Pasteur treatment are the census reports showing the mortality statistics from rabies. In the census of 1900, when only about 40 per cent of the population resided in districts where registration was observed, 123 deaths from rabies distributed in 20 States were reported. That this number was entirely too low was shown by Salmon in 1900, who corresponded with a number of health officers within and without the registration districts and collected 230 authentic cases of hydrophobia in man during this same interval in 73 cities.

That the increase of rabies in animals which has been demonstrated above bears a direct relation to the increase in the disease in man is shown by the vital statistics of the Census Bureau, as follows:

In 1903, 43 people died of rabies; in 1904, 38; in 1905, 44; in 1906, 85; in 1907, 75; in 1908, 82. These deaths occurred only in the registered area of the United States, which now includes about 51 per cent of the total population."

Surely the review of such figures will not permit us to treat the question of control with indifference. The time has come when the cry of protection from the people demands quick, decisive and effective action.

GLANDERS.

Glanders is the result of a specific infection of the animal body with a specific micro-organism—the *Bacillus Mallei*. Contrary to public opinion this disease is not a natural aftermath of such diseases as strangles, nasal gleet, decayed teeth, empyema of the sinuses within the head, or chronic bronchial or pulmonary lesions; tho the disease may, to the laity, in some respects, simulate some of these

lesions during its progress, especially in chronic cases. With reasonable precaution this disease can easily be kept under control. During the past five years we have succeeded in stamping out every reported outbreak except the one which engaged our attention around Towns in Telfair county. This failure can only be attributed to the fact that the public absolutely disregarded the precautions which they were advised to follow. The quarantine restrictions were ruthlessly violated and disregarded and the disease thus allowed to spread; this, of course, could and should have been prevented. In order to obtain the best results the local enforcement of quarantine should be a stipulated duty of State, County and Municipal officers, or of the county Board of Roads and Revenues; it should be their duty to report the final disposition of such animals to the State Veterinarian, and they should be, by law, required to prosecute all violators of the quarantine restriction.

ANTHRAX.

No authentic cases have been reported or investigated in the State.

TICK-FEVER.

This disease presents the most enormous handicap to the cattle industry in the State. A cattle industry cannot flourish when saddled with the presence of the cattle or fever-tick. The public is awakening to this fact and demands for aid in the extermination of this parasite are continually pouring into this Department. With the limited means available we are at present working along improved lines in Hart, Green, Putnam, Hall, Banks and Clark counties. Preliminary work is in progress in Murray and Fannin county and we maintain one State Inspector in the counties of White, Habersham, and Stephens to prevent the introduction from the tick-infested area into this free area. No doubt, for awhile, the restrictions of traffic incidental and absolutely essential to the extermination of the cattle tick (*Margaropus annulatus*) will, to the uninitiated, appear needless and an encroachment upon their personal rights and privileges; but the practicability of tick-eradication has long since passed the experimental stage and the enforcement of quarantine restriction is, at its worst, a blessing in disguise.

The work is progressing satisfactorily, the co-operation of the Bureau of Animal Industry has been all we could expect in view of our own limited appropriation. The Inspectors and Agents furnished by the federal government have, in each instance, been capable, trustworthy and efficient men; the same is true of the inspectors employed by the State and the counties. Progress of tick-eradication will always depend upon the real interest manifest by the people, where the cattle owners take an active interest in the work entire counties may be cleaned, as if by magic, within the space of 12 or 15 month; indifference and refusal to comply with the law will materially hinder the work and prolong the completion of the task.

Comparative figures upon the progress of the work are not available this year; but, hereafter, we shall be able to give a detailed statement of condition and also of cost of cleaning each county.

An additional appropriation would enable us to group the territory in which we work on a more economical basis, and also conform to the demand for extension of this work into the various counties which are now clamoring for our assistance in the eradication of the tick.

The feeding of cattle raised above quarantine line is but another extension in farm development which can only be conducted safely when the cattle ticks are eradicated. This industry does not only encourage the consumption of home products (cotton seed meal and hulls and other forage) but it is the successful and most economic way in which to rebuild the worn-out lands and restore the farms to a basis of profitable cultivation. However, in the presence of the fever-tick good feeders can only be introduced at a great risk from the tick free area; and then, when they are shipped north again, these same northern cattle are confronted with the handicap of a restricted market—they can only be shipped for immediate slaughter and bring one-half cent, or more, per pound less than the same cattle would have brought had they not entered the tick-infested area.

The tick is the greatest handicap to the agricultural development of the South and no money can be spent with a more certain assurance of quick and profitable return than that spent in the extermination of the cattle tick.

Unscrupulous quacks are advertising and offering the public nostrums claimed to be specifics against tick-fever. Their actions cannot be too strongly condemned. The only specific against tick-fever is the extermination of the cattle-tick, and the nearest substi-

tute either acquired or artificial immunity (hand infestation with seed ticks or serum inoculation), these latter processes being especially serviceable in cattle shipped in from non-infested territory. None of the so-called "Tick-Oils" have any virtue beyond, possibly, the destruction of those ticks with which it comes in direct and continued contact, this may be as safely and quickly accomplished by the old familiar Kerosene, Lard and Sulphur compound. Better yet send for Bulletin No. 5 and carry out the suggestions offered; we especially recommend the arsenical solutions.

HOG CHOLERA.

The swine industry received a vital blow from the extensive spread of cholera among hogs throughout the State. Especially the southern part paid an excessive tribute to this dreadful plague. The county of Brooks alone lost in excess of \$50,000.00 during the past year from this disease and the neighboring counties of Lowndes, Baker, Berrien, Colquitt, Thomas, Grady, Decatur, Early, Miller, Calhoun, Dougherty, Mitchell, Worth, Crisp, and others of that section have all reported losses from cholera. There is hardly a doubt that some of these reported cases were not cholera, but at least 75 or 80 per cent were due to this disease. On a conservative basis it is certain that the annual (last year's) loss from hog-cholera is in excess of \$350,000.00.

Last year I conducted, at your request, a series of experiments with the Dorset-Niles Serum. Encouraged by the flattering results a bill was introduced in the Legislature asking for an appropriation of \$5,000.00 with which to establish a laboratory for the manufacture of this serum, and with which to conduct the field work of distribution. The General Assembly failed to pass the bill during the immense rush of other bills which preceeded it.

During the past year additional experiments have fully sustained the confidence placed in the serum as a preventative measure against cholera and it is to be hoped that the next Legislature will not overlook the need of the urgent legislative relief to an industry which is tottering under the onslaught of a specific infection which can be controlled at a very nominal cost. It is not desirable that the serum should be manufactured for free distribution, but it ought to be produced from native immunes and sold to the people at the

actual cost of production. The actual distribution and administration should be under the supervision of the State Veterinarian.

As in other contagious diseases, so in cholera, a strict local quarantine should be observed to prevent the spread of the infection. Transportation of hogs within the infected area should be prohibited; and in counties where no stock-law exist temporary stock law should be enforced until the disease is under control.

Interstate shipment of hogs should be accompanied by affidavit of owner that the animals have not been exposed to hog-cholera and do not hail from infected territory.

It has been a pleasure to me to publish, in the various state papers, short talks on cholera but I believe better results can be obtained by publishing a short and concise bulletin on this disease for free distribution among those who are interested. With that aim in view a bulletin is now in course of preparation and I hope to have it ready for the printer in the near future.

HEMORRHAGIC SEPTICEMIA.

Enzootics of this disease are observed annually tho the losses, as a whole, in this State, are not very great. The abdominal type, in common with tick-fever, is known to the farmers under the name of "bloody murrain." In the beginning of an outbreak a few cases frequently die very suddenly—in from 6 to 12 hours—due, no doubt, to a special susceptibility of the affected animal; subsequent cases invariably live 4 or 5 days in acute attacks, while milder cases, assuming a more chronic character, may survive 3 or 4 weeks and then die.

For the benefit of cattle owners I will describe a typical outbreak, quoting from my report of an investigation conducted near Moundville in Merriwether county.

"All appeared well until, during the first week of July, a six year old cow died after an illness of about eight days. The most prominent symptoms were: Extensive, painful swelling of throat, tongue swollen and a constant flow of saliva dripping from her mouth, rapid and difficult breathing, nasal discharge, constipation (fecal discharge blood-stained), urine normal in color, great weakness and rapid loss of flesh. A few days following the death of this cow another sickened and died in two days, symptoms almost identical. The next to be affected gradually improved after a lapse of five days but, subsequently, suffered a relapse and is now in a critical condition. A two year old steer in prime condition showed swelling of the throat and died in 36 hours.

Looking for the cause of this disease Mr. A—O—discovered ticks on his cattle and decided they were dying of tick-fever. He at once picked them clean and greased them with a mixture of lard and kerosene, equal parts of each; consequently, when I saw the cattle they were tick free. But, "tick or no tick," the symptoms related and the conditions found are NOT due to tick infestation and therefore NOT tick-fever. Of course some of the symptoms exhibited are found in Piroplasmosis such as: weakness, loss of appetite, constipation and cessation of rumination and lactation, but these symptoms are common to nearly all febrile, and especially, infective conditions.

Within the last few days Mr. A—— has learned that the bull now heading his herd was one of a carload of mixed cattle (23) shipped to Mr. R——'s plantation last year; nineteen of this bunch are said to have died of a similar affection.

EXAMINATION.

Mr. A——has his cattle divided and keeps them in two different pastures; his dairy herd, which is the affected herd, runs on a creek bottom; the other is on upland pasture and has so far remained healthy. The dairy herd consists of four cows, the bull previously referred to and six calves from six weeks to eight months old. Two of the calves have been sick but seem to have recovered, tho they are thin. The cow, above mentioned, is a six year old Jersey grade badly emaciated, tho the owner assures me she was in fine condition prior to her illness. She is very weak. Her head is extended and a hot, painful swelling extends from a point near the chin to the third or fourth tracheal ring, the swelling is firm without subcutaneous gas formation, the base of the tongue is badly swollen and the mouth is partly open from it exudes a constant, stringy flow of saliva. The visible mucous membranes are pale with a slight yellowish tinge (iochorremia); no ulcers or pustules in the buccal cavity. Respiration 44; inspiration is especially painful and jerky. Surface temperature is irregularly distributed, rectal temperature (at 6:30 a. m.) F. 101.6; pulse 88; auscultation reveals serous infiltration in bronchi, and blowing centers in left lung. Urine—normal passage—is amber colored and appears normal (not chemically examined). Feces soft and streaked with blood."

The preceding is a fairly typical outbreak and I hope will serve to impress the cattle owners with the symptoms which are commonly observed in this affection.

Treatment has been found very unsatisfactory and at present we can only recommend: "separation of the well and sick." The cattle ought to be changed to an entirely new pasture—upland if possible.

EMPHYSEMATOUS ANTHRAX.

(Black Leg.)

Tho not extensively distributed over the State this disease has, nevertheless, levied a heavy tax upon certain communities. The dis-

ease primarily affects the younger animals ranging in age from six months to two years; and yet, in communities where it has just been introduced it is by no means uncommon to see the older cattle sicken and die.

Our greatest losses have been in the mountain ranges bordering the Carolinas. This spring we encouraged the vaccination of cattle in the affected districts and so far our reports indicate that losses have been very small.

EPIZOOTIC CEREBRO SPINAL MENINGITIS.

Under this heading I want to record the appearance of a specific disease which appears sporadically among our cattle. We have not had the opportunity to, or the means for, conducting a searching investigation in this matter and, therefore, offer only a part of our report in the W. C. Sears investigation, hoping to have the opportunity to study the affection in greater detail in the future.

“HISTORY OF THE CASE.”

“In September 1909, we were called to examine a bunch of cattle in Early county belonging to Messrs. Freeman and Middleton. These cattle exhibited symptoms strongly suggestive of Hydrophobia; they would live from 3 to 8 days after the preliminary symptoms became manifest, and each animal affected died. The disease affected alike the young and the old of either sex. Our diagnosis, then, was a compromise, our treatment a failure. We considered it a dietetic affection, the result of feeding on unwholesome vegetation and believed it to be a purely local condition. No other cases were reported to this department at that time.

Now, nearly a year after, Mr. Sears tells me that August and September of that year he and his neighbors lost many head of cattle from the disease now affecting his cattle; he reports a few head recovered. The disease among his cattle is identical with our outbreak in Early county, tho the attack is of a milder form, none of the symptoms showing the same degree of intensity manifest in the Early county outbreak. Only one has died so far, four more kept in the same pen and pasture are now affected.

A yearling, apparently on the road to recovery, raises her

head upon hearing us approach and retreats to the remotest corner of the enclosure, her head is highly elevated, her eyes sparkle, (cerebral excitement). When well the calf is extremely gentle. A week ago fat and slick-coated she has lost much in condition by reason of her illness, both flanks look hollow—she appears “pot-bellied”—her coat is lusterless, the discharge from her bowels appear normal, the urine likewise. Mr. Sears claims, and I observed the same condition in the other animals, that when they are at their worse the urine dripples from them very freely at irregular intervals. The muzzle is dry, the appetite apparently good. Visible mucous membranes are slightly injected, temperature 101.3 F. respiration 24. The submaxillary glands are prominent—somewhat enlarged, the same is true of the prepatellar glands.

The most prominent symptoms are uneasiness and constant mournful bellowing, the preliminary shyness gives away to an unusual aggressiveness alternated with deep stupor.

Mr. Sears promises to let us know when one of the cattle is on the verge of collapse so that we may have the opportunity of holding a post-mortem.

This opportunity was not given us but Mr. Sears' partner told me that he cut one open and found it “very red around the backbone and feverish looking.”

ENZOOTIC SPINAL MENINGITIS.

An outbreak of enzootic spinal meningitis was observed near Metter in Bulloch county. Every animal in the barn succumbed to the disease. A few died quickly, in about 2 days, but most of them lingered for a week or more.

Lack of laboratory equipment prevents us making a more thorough scientific investigation in these cases. But basing our opinion exclusively upon the clinical evidence this outbreak was the result of a specific infection.

PARASITIC INFESTATIONS.

The annual loss to the live-stock industry from parasitic infestation is extremely difficult to determine because no statistics upon the subject are available. Without some systematic work along this

line we cannot hope to make any real advance in determining the cost of this item to the live-stock industry.

It is an open secret that many cattle upon our ranges are impoverished and die because of infestation with "Hæmorchis Contotus," a small, hair like, blood sucking worm infesting the abomasum and intestines of cattle, goats and sheep.

The symptoms observed are those of general emaciation and debility, loss of appetite, diarrhea, paleness of the mucous membranes, extreme roughness of the coat, and great thirst without fever. Swellings are frequently observed about the head between the lower jaws and extending back as far as the throat. Other parasitic infestations are met with but not to an extent sufficient to present a formidable handicap to the live-stock interest.

During the month of January, 1911, a sample of meat was sent to the State Chemist, who requested me to make an examination. Examination revealed a piece of hog meat intensely infested with "Trichinosis." We so informed the owner and received the following card in reply:

"CARD."

Dear Sir:—

Replying to yours of 6th inst., will say the sample of meat sent you was obtained from the center of a ham on the day of the killing. The heart was very badly affected. Any other information will be gladly furnished. The hog (sow) about 2 1-2 years old, began to eat chickens, was very hearty and looked healthy.

J. C. POWELL.

The consumption of trichinous meat is very dangerous to man and an effort should therefore be made to locate these affected places and stamp out the infestation.

INTOXICATIONS.

Annually the State loses an enormous amount thru the feeding of forage which is unfit for food consumption. This subject can not be profitably discussed in an annual report and we have made it a point to discuss the subject in detail to the farmers at farmers' meetings. In its last analysis this is a question of education and it is the duty of every farmer to study the class and condition of food

which he offers to his live-stock—horses and mules in particular. No where does the forcefulness of the old axiom “An ounce of prevention is worth a pound of cure” apply more aptly and literally than in feeding and watering the work-stock, either on the farm or in the city.

Respectfully submitted,

PETER F. BAHNSEN,

State Veterinarian.

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