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Bovine tuberculosis in North Louisiana : with a report upon same

S B. Staples

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BULLETTIN
OF THE
LOUISIANA STATE EXPERIMENT STATIONS,
WM. C. STUBBS, Ph. D., Director.

Bovine Tuberculosis in North Louisiana,

WITH A REPORT UPON SAME BY
DR. S. B. STAPLES, D. V. S., and DR. W. H. DALRYMPLE,
M. R. C. V. S.

ISSUED BY THE BUREAU OF AGRICULTURE. J. G. LEE, COMMISSIONER.

BATON ROUGE
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BUREAU OF AGRICULTURE.

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H. SKOLFIELD, Treasurer, Baton Rouge, La.

The Bulletins and Reports will be sent free of charge to all farmers, by applying to Commissioner of Agriculture, Baton Rouge, La.
Hon. J. G. Lee, Commissioner of Agriculture and Immigration:

DEAR SIR:—The discovery of Tuberculosis in the dairy herd of the North Louisiana Experiment Station, Calhoun, is of such importance, that I have deemed a bulletin on the subject as extremely opportune. The report of Drs. S. B. Staples, D. V. S., and W. H. Dalrymple, M. R. C. V. S., is herewith transmitted, together with an explanatory introduction by myself, which I ask to be published as Bulletin No. 43.

Respectfully submitted,

WILLIAM C. STUBBS,

Director.
In the fall of 1888, experimenting with improved breeds of cattle begun at Calhoun, a pair of Holsteins were purchased of Mr. J. W. Howard, of Aberdeen, Miss., and a pair of Jerseys from Dr. W. C. Oates, of Vicksburg, Miss. Later, in 1891, a pair of Devons were procured from Mr. T. W. Hardy, of Mississippi, and later still, in 1893, a Devon bull from Mr. Duncan Stewart, of West Feliciana, La., to replace the bull bought from Mr. Hardy, which had died in the summer of 1892, presumably from "Southern Fever."

In 1891, a pair of Guernseys were purchased from Mr. John G. Mobley, of Winnsboro, S. C.

From these have descended all of the pure-breed animals now in our dairy. The following are the only losses of mature animals which the Station has suffered since the inauguration of stock experiments, viz: Both of the Devons bought from Mr. Hardy. The original Holstein cow, "Reubena," bought from Mr. Howard. Both of the Devons were thought to have died with "Southern Fever," and Reubena from age and general debility. No suspicion of Tuberculosis attached to any of the deaths mentioned, nor can we recall now symptoms in any case similar to those developed by Lucy S., the Jersey cow killed as mentioned in the report given below.
ESTABLISHMENT OF THE DAIRY.

The increase from the above purchases, gave us in 1895, enough milking cows to justify the establishment of a dairy upon strictly scientific lines. Accordingly a cow stable and a dairy were built and equipped in the most improved manner. An expert from Wisconsin, sent by Prof. W. A. Henry at our request, was placed in charge, and work begun in April, 1895. Besides the cows of the breeds given above, the following were borrowed for comparison with the pure breeds, viz: one native and one-half Jersey. A three quarter Jersey was also added by purchase.

The first year was so successful, that it was determined at the beginning of the second, to slightly increase the herd. In May of the present year, four high-grade Jerseys from Jones & McGuire, of West Monroe, La., were added to the herd, and the borrowed common and half Jersey cows were returned. The entire herd consisted at the time of this investigation of 22 head, each described in the table of the report.

CAUSE OF THE INVESTIGATION.

Upon an official visit to the Station in September, the young Jersey cow, Lucy S., which had been gradually wasting away for several weeks, aroused the suspicion of "Tuberculosis." The disease had been frequently seen in the North, but this was the first case that had come under the observation of the writer in the South. Hence the surprise and regret.

Dr. Dalrymple, being present, was at once consulted, and confirming our suspicions, the cow was at once isolated and ultimately killed, and the carcass destroyed, as mentioned in the report. At once an investigation of the entire herd was made by Doctors Staples and Dalrymple, and their report given below, shows that six head responded to the tuberculin test.

The seventh animal (the cow referred to) which showed typical external signs of the disease, and was on post mortem found to be almost a mass of tubercular lesions, did not react, which occasionally happens in advanced cases of tuberculosis, but the disease at this stage is apparent.
Those responding were all of the pure breeds, the grades giving no evidence of the disease. How the disease originated is, of course, not definitely known. It may have been imported with some of our purchases. If so, it has remained dormant for a long time, having been five years since our last purchase of pure stock outside of the State, and this was the first case of sickness which had shown symptoms of Tuberculosis. It may have been transmitted, as the report says, from one of the employees on the Station, who died from consumption about one year ago. Be this as it may, the presence of Tuberculosis is in the Dairy Herd, and the question now is how to eradicate it. Can it be done without destroying the best portion of the herd?

The animals afflicted with it are valuable representatives of choice strains of blood, and to destroy them would be not only a large money loss, but little short of a great calamity to this new industry in our State. Dr. D. E. Salmon, Chief of Bureau of Animal Industry, Department of Agriculture, Washington, D. C., says: "Tuberculosis can be eradicated by breeding, if the farmer makes use of all the discoveries which modern science has placed at his disposal; if he tests, isolates, disinfects and sterilizes and intelligently conducts all of the operations of the breeding-farm with this single object in view."  

* * *  
"Tuberculosis is caused by a bacillus—a living micro-organism—belonging to the lowest forms of vegetable life."  

* * *  
"It lives and multiplies in the animal body as a true parasite—an obligatory parasite—because so far as we know, it cannot develop and reproduce itself elsewhere in nature, except under the special conditions furnished in the bacteriological laboratories."  

* * *  
"It is a disease which arises under natural conditions from contagion only; that is, from taking into the body, bacilli which have developed in the body of some affected animal."  

* * *  
"These bacilli may have escaped from the animal in which they developed, either with the nasal discharge or the milk, or they may have penetrated from the uterus of the mother and have begun their multiplication in the body of the calf before its birth."  

* * *  
"The disease cannot develop without infection with
that specific living thing known as 'bacillus tuberculosis.' The bacillus tuberculosis cannot develop and multiply except within the animal body." * * * "The bacillus may live a limited time outside of the animal body, but remains dormant, gradually loses its vitality and finally dies." In attempting to eradicate tuberculosis by breeding, it is, consequently, the bacillus which should ever predominate in our minds. The animals need only secondary consideration.

Dr. Austin Peters, who has been prominent in the investigations of tuberculosis in Massachusetts, says: "Tuberculin is a chemical product of the tubercle bacillus. It is prepared from cultures of the germ, which have grown long enough to produce ptomaines. These products are extracted by glycerine. The fluid is filtered and sterilized. It contains no living germ and cannot by any possibility produce tuberculosis in a healthy animal." * * * "It has been found, that consumptive patients after treatment had a characteristic febrile action" and hence is now used as a "diagnostic agent for bovine tuberculosis." * * * "Under suitable conditions it is very nearly infallible." ***"It undoubtedly has curative effect upon cattle that are but very slightly diseased, as many animals that react at one time will not react if placed under good hygienic conditions and tested again eight or more months later."

Armed with these strong assertions from the very best and highest authorities, the Station has determined to attempt the eradication of this disease by breeding. It has accordingly thoroughly isolated those cattle which have reacted to the tuberculin test. It has disinfected the stable, stalls, boxes, troughs, etc., and will continue to do so at short intervals in the future. It has placed different attendants at the healthy and infected stables. At intervals, tuberculin tests will be repeated upon both the healthy and infected herds. When an animal from the infected herd fails to respond to the test it will be transferred at once to the healthy lot, and when a freshly infected animal is found in the healthy herd, it will be sent to the isolated animals. Every calf born from the infected herd will be separated from its mother at birth and fed only on the milk of healthy animals.
Animals in an advanced stage of the disease will be slaughtered and cremated.

By careful attention to the above, the Station hopes to enlarge its herd, prevent financial loss, and ultimately to eradicate tuberculosis.

**SUSCEPTIBILITY TO TUBERCULOSIS.**

It is gratifying to note from the report, that none of the grades in this herd responded to the tuberculin test. In the absence of direct trials it is to be inferred that our native cattle have strong racial insusceptibility to this disease and are perhaps free from it. It has been shown that the presence of the bacillus tuberculosis is necessary for the disease, and may therefore be regarded as the exciting cause. Without the germ there can be no disease. But there are also predisposing causes, which are given by Dr. Peters under nine heads, as follows:

"1st. Species of Animal—The bovine species very susceptible; the equine insusceptible.

"2d. Heredity—Predisposition and congenital tuberculosis. A person or animal having one or both parents tuberculous is more susceptible to the disease if exposed to infection. A disease is said to be congenital when acquired in uterus. Fortunately there are very few cases of congenital tuberculosis on record.

"3d. Breeding in and in tends to weaken the constitution of the progeny.

"4th. Breeds varying in susceptibility—Jersey and Guernsey are most subject to it.

(Our hardy natives are believed to be less liable than pure breeds. Professor Law cites a race of cattle, established by selection and survival upon the steppes of Eastern Europe and Asia, which is nearly proof against Rinderpest, a disease so deadly that it speedily kills all susceptible cattle. He also cites the Algerian sheep from same causes as proof against the deadly poison of anthrax.)

"5th. Early, late, and over-breeding lower the vitality of both mother and foetus.
"6th. Physical Conformation—Cattle with narrow chests, light barrels and disproportionately long legs, are undoubtedly predisposed to tuberculosis

"7th. Climate and Locality—A moist, changeable climate favorable to tuberculosis.

"8th. Debility from excessive lactation, sickness and deficiency of food in quantity or quality.

"9th. Bad hygienic conditions—Hot or badly ventilated stables; no exercise, absence of sunlight, etc."

The above are the predisposing causes. Since our native cattle in Louisiana are nearly exempt from the above predisposing causes, our energies should just now be directed to the exclusion of the main and exciting cause. To this end every effort should be made to prevent the importation of the germ. No animal should be imported to the farm until by the tuberculin test it was pronounced free from tuberculosis. If every farmer, contemplating an importation of new blood in his herd, should demand before purchase, a subjection to the tuberculin test, it would soon lead to the establishment of herds entirely free from tuberculosis.

Many States have rigid laws relative to tuberculous cattle and Louisiana may some day find it necessary to legislate on the same subject. In the meanwhile the private citizen must protect himself as best he can.

Attention is called to the accompanying report, which gives in detail the results of the tuberculin tests upon the entire herd, together with other valuable information.

Wm. C. Stubbs, Director.
Baton Rouge, La., October 1st., 1896.

Dr. W. C. Stubbs, Director,
Audubon Park,
New Orleans, La.

Dear Sir:—On receipt of your letter of the 26th ultimo, and the arrival of the tuberculin from New Orleans, we, the undersigned, at once proceeded to the North Louisiana Experiment Station at Calhoun, and there tested the entire station herd, including animals of different breeds, sex and ages, with tuberculin for the purpose of determining accurately the existence or non existence of tuberculosis (consumption), amongst the dairy cattle, strong suspicion that such disease did exist, having rested upon a three years’ old Jersey cow which exhibited very marked physical signs of generalised tuberculosis.

The following is a brief report of the modus operandi, and results of our investigation.

It might be well to mention at the outset, for the benefit of those interested in the subject, and who may read this report, but who may not be in possession of the facts with regard to tuberculin, and its use as a diagnostic agent in bovine consumption, that it (tuberculin), was first prepared by the great German scientist, Dr. Robert Koch, who thought after experimenting with it on some of the smaller animals, that he had succeeded in obtaining an agent, which when injected subcutaneously into the human subject suffering from consumption, would effect a cure. In this, however, it proved a failure. But it is only fair to the noted scientist to state, that the whole civilized world were so anxious to get hold of a cure for this fell disease, that they forced Dr. Koch into making public the results of his research before he considered himself prepared to do so. But although tuberculin has proved inefficient as a direct cure for human consumption, a wonderful advance has been made toward reaching that much to be desired end, in that it (tuberculin) has proved to be such an accurate diagnostic agent when injected
into cattle, and especially milk cows suffering from tuberculosis, even in the most incipient form. Hence affected animals that react to its administration, can be isolated or destroyed, and a dangerous source of transmission of the disease to the human family checked, viz: a contaminated milk supply from tuberculous cows.

Tuberculin is a specific substance obtained from a culture of the bacilli, or in other words, is a glycerine extract of the germs of tuberculosis or consumption.

Independent investigators, in this and in other countries, are agreed as to the main facts with regard to consumption, and the accuracy of the tuberculin test, and the following preamble and resolutions, which were unanimously adopted by the United States Veterinary Medical Association at their Thirty third annual convention in Buffalo, N. Y., in September last, may be said to represent the chief points which have been rendered practically free from doubt:

Whereas, Tuberculosis of some of our domestic animals, and especially of cattle, is a widespread and destructive disease, and

Whereas, Statistics accumulated during the past year, show that the disease is very prevalent throughout this country, especially in dairy herds, and indicate that it is steadily increasing, except in States where active measures for its suppression have been enforced, and

Whereas, There exists in some quarters a difference of opinion as to the relation of tuberculosis among cattle to the public health, notwithstanding the fact that this matter has been the object of careful scientific inquiry by a great number of eminent scientists in all parts of the world, and that reliable and uniform results and observations are recorded in great numbers in veterinary and medical literature, be it

Resolved, That it is the opinion of the United States Veterinary Medical Association, that the following points have been demonstrated beyond dispute, and may be accepted as fully established:

1. That tuberculosis of man and cattle is identical.
2. That the milk of cows with tuberculous udders may cause tuberculosis in animals fed upon it.
3. That the milk from cows with extensive tuberculosis, but apparently healthy udders, may in some cases contain the germs of tuberculosis, and cause the disease in animals fed upon it.
4. That in some cases the germs of tuberculosis appear in the milk of tuberculous cows that are not far advanced in the disease, and have udders that are healthy, so far as can be determined by an examination made during the life of the animal.
5. Slightly tuberculous cows sometimes succumb to a sudden exacerbation of tuberculosis, and furnish virulent milk for a period before it is possible to discover their condition by means of a physical examination.
6. Tuberculin furnishes incomparably the best means of recognizing tuberculosis in the living animal.
7. Tuberculin, properly used for diagnostic purposes, is entirely harmless to healthy cattle, and is so exceedingly accurate in its effects, that the few errors resulting from its use cannot affect the general results, and are of less frequent occurrence than follow the use of any other method of diagnosing internal diseases.
8. That the carcases of tuberculous animals may be and sometimes are dangerous to the consumer, and all such carcases should be subjected to a rigid inspection by a competent veterinarian, and those that are condemned should be disposed of in such a manner that it will be impossible to put them on the market for consumption as human food.
9. That the importance of dairy inspection cannot be overestimated, and municipal and health authorities should at once perfect a system commensurate with the vast importance of the subject.

Resolved, That the live stock, and especially the breeding interests of this country can never regain their former prosperity until such measures have been carried out by the National and State governments as will afford some reasonable guarantee
against the continued ravages of this disease. And in view of
the prevalence of bovine tuberculosis in foreign countries, and
the measures taken by some of them to protect their cattle from
further infection, the United States should prohibit the importa-
tion of breeding animals until they have been proven by the
tuberculin test to be free from this disease.

In order that the results which appear in this report, in
tabular form, may be better understood, we give here the
method of applying the test:

On the day previous to making the injection (all conditions
being favorable) the temperature of each animal is taken by the
clinical thermometer, at three different times, viz.: morning,
noon and night. It may be taken at shorter intervals, and for sev-
eral days previous if desired, but ordinarily a fair average tem-
perature can be obtained with three observations. After the
third observation, the dose of tuberculin, which is about two
cubic centimetres per 1000 lbs. weight, is injected underneath the
skin, either behind the shoulder-blade or in the side of the
neck. On the tenth hour after injection, the temperature is
again taken, and repeated at intervals of two hours, until the
twentieth hour is reached. Should the temperature rise two de-
gree or over above the average before injection, the indications
are that the animal is tuberculous. In animals which are per-
fectly free from the disease, the reaction will be nil, or only very
slight, i.e. the temperature will not rise at all, or only very little.
A point worthy of notice right here is, that occasionally animals
in an advanced stage of the disease do not react to the test, and
counterwise, those having consumption in an incipient form, but to
all external appearances healthy, frequently give a most marked
reaction. Of course in an advanced case, the ordinary physical
signs will be sufficient in themselves to enable a correct diag-
nosis to be made, independent of tuberculin test.
<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Breed</th>
<th>Age</th>
<th>Sex</th>
<th>Amount of &quot;tuberculin&quot; injected</th>
<th>Time of Injection</th>
<th>Temperature Before Infection</th>
<th>Temperature After Infection</th>
<th>Average temperature before injection</th>
<th>Maximum temperature before injection</th>
<th>Rise above average</th>
<th>Rise above maximum</th>
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<td>Lucy S</td>
<td>Sep. 28,</td>
<td>Jersey</td>
<td>3 yr</td>
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<td>9 P.M.</td>
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<td>Dot</td>
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<td>Devon</td>
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<td>101.6</td>
<td>101.4</td>
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</tr>
<tr>
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<td>gr. Jersey</td>
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<td></td>
<td>2 c.c.</td>
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<td>101.6</td>
<td>101.4</td>
<td>102.6</td>
<td>102.0</td>
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<td>101.8</td>
<td>101.4</td>
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<td>101.8</td>
<td>101.4</td>
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<td></td>
<td>Devon</td>
<td>13 m</td>
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<td>101.2</td>
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<td>102.4</td>
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<td>Jersey</td>
<td>9 yr</td>
<td>bull</td>
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<td>100.6</td>
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<tr>
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<td>3 yr</td>
<td>fe</td>
<td>2 c.c.</td>
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<td>101.4</td>
<td>102.2</td>
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<td>10 y</td>
<td>bull</td>
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<td>99.6</td>
<td>100.0</td>
<td>99.6</td>
<td>101.0</td>
<td>101.4</td>
</tr>
<tr>
<td>Daisy</td>
<td></td>
<td>Jersey</td>
<td>5 yr</td>
<td>fe</td>
<td>2 c.c.</td>
<td></td>
<td>101.2</td>
<td>101.2</td>
<td>101.4</td>
<td>101.8</td>
<td>103.8</td>
<td>104.8</td>
</tr>
</tbody>
</table>
As will be seen from a glance at the table, the Jersey cow, "Lucy S." had the same maximum temperature (103.0) before, as she had after being injected, and yet on post mortem was found to be bordering on the last stages of generalised tuberculosis.*

It is interesting to note the effect of the tuberculin on animals under various conditions. In the case of the Guernsey cow "Bessie," who was within two months of calving, the rise of temperature after, above the average before injection, reached only nine tenths of a degree. Showing that the normal temperature was not appreciably disturbed by the administration of the lymph.

Neither in the case of the Holstein cow, "Ada V.," who was at the period of oestrus or heat, did the inoculation seem to have any marked effect. In fact the maximum temperature after, was lower by eight tenths of a degree.

There is quite a difference also in the time at which different animals show the highest temperature, after injection of the lymph.

"Dot," the Devon cow, registered the highest temperature at the tenth hour, viz: 105.4 degrees, and was the same at the twelfth.

The Jersey cow, "Beautiful Princess," registered 104.0 (her highest temperature), at the twelfth hour.

"Daisy," Jersey cow, at the fourteenth hour showed 104.8, her highest.

Holstein bull, "May's Prince," was 105.1 at the eighteenth hour.

And the Jersey bull "Prince Calhoun," and "Thornless," Guernsey cow, registered respectively 103.6 and 104.4 at the nineteenth hour.

It might be stated here that 103.6, the Jersey bull’s maximum, may be considered low, but his average before injection only reached 100.3, giving a rise of 3.3 degrees.

*Note.—This was the only animal destroyed, as she exhibited every indication of succumbing to the disease in a very short time.
As a matter of some scientific interest we requested Mr. George Steil, the dairy expert on the station, to furnish us a record of the yield of milk, and the butter fat content in two milkings before and after inoculation. This, Mr. Steil supplied us, and it appears in this report in tabular form:
### TABLE OF MILK YIELD AND PERCENTAGE OF BUTTER-FAT.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Time of day</th>
<th>Pounds milk</th>
<th>Per cent. butter-fat</th>
<th>Date</th>
<th>Time of day</th>
<th>Pounds milk</th>
<th>Per cent. butter-fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ada V</td>
<td>Sept. 28, '96</td>
<td>Morning</td>
<td>14.0</td>
<td>1.6</td>
<td>Sept. 29, '96</td>
<td>Morning</td>
<td>18.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Beautiful Princess</td>
<td></td>
<td>&quot;</td>
<td>9.5</td>
<td>8.5</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8.5</td>
<td>3.0</td>
</tr>
<tr>
<td>May</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8.0</td>
<td>5.0</td>
<td>&quot;</td>
<td>&quot;</td>
<td>7.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Susie</td>
<td>&quot;</td>
<td>&quot;</td>
<td>7.0</td>
<td>4.3</td>
<td>&quot;</td>
<td>&quot;</td>
<td>3.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Bessie</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8.0</td>
<td>5.8</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8.0</td>
<td>5.8</td>
</tr>
<tr>
<td>Dot</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8.0</td>
<td>5.6</td>
<td>&quot;</td>
<td>&quot;</td>
<td>7.0</td>
<td>3.6</td>
</tr>
<tr>
<td>Niva</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8.0</td>
<td>5.4</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8.0</td>
<td>5.4</td>
</tr>
<tr>
<td>Strawberry</td>
<td>&quot;</td>
<td>&quot;</td>
<td>11.5</td>
<td>6.4</td>
<td>&quot;</td>
<td>&quot;</td>
<td>9.0</td>
<td>4.4</td>
</tr>
<tr>
<td>Daisy</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8.0</td>
<td>4.2</td>
<td>&quot;</td>
<td>&quot;</td>
<td>9.0</td>
<td>4.4</td>
</tr>
</tbody>
</table>


"Ada V." does not seem to show any variation in quantity of milk, but her percentage of butter-fat is higher in the first milking after inoculation by 2.4 over that of the previous morning. This may possibly be attributable to her condition (oes-trum).

The record of "Beautiful Princess" (Jersey) shows quite a marked variation, both in yield of milk, and percentage of butter-fat. As will be seen the morning milking, before and after injection, varies widely, but the greatest difference appears in the evenings' quantities, viz.: a variation of eight pounds of milk and 2.8 per cent. of butter-fat.

"Dot," Devon cow, drops from 7 pounds to three pounds in the afternoons' milkings.

"Strawberry," a grade cow, reduces somewhat in quantity of milk, but increases in percentage of butter fat.

"Daisy" (Jersey) in her mornings' yield remains the same, but gives an increase in butter fat. In the second milking she drops from eight pounds on the previous day to one pound on the evening after inoculation.

We may state here that this last-named cow was suffering from indigestion and tympany during the forenoon of the day that she is credited with only one pound of milk.

In most of the animals, the reduction in the yield of milk may be attributable largely, we think, to a diminution in the quantity of food partaken of during the progress of the investigation, as the animals were kept in the stable and deprived of the forage they otherwise would have had if turned out.

All the animals showing a rise of fever of two degrees or over, were ordered isolated, and to be attended to by some one who was to have no connection whatever with the other cattle; the milk sterilized (boiled for 15 minutes), when it could with safety be fed to the pigs, and the stables and sheds thoroughly disinfected with lime wash and crude carbolic acid.

The carcass of the tuberculous cow, "Lucy S.," which we had killed for post mortem examination, was burnt.
We would suggest, that for confirmation, the suspected animals should be again tested at an early date, unless you decide to act on the present findings of the tuberculin test at once and have the animals destroyed, or make some other disposition of them for the purpose of experimentation. It is somewhat difficult for us to determine accurately the channel through which this disease reached the Experiment Station herd, except the possibility of some of the imported animals having tuberculosis in an incipient stage when purchased.

There is another possible source through which the disease may have been transmitted, although we are not prepared to assert positively, that this immediate outbreak was produced through this medium.

One of the employes on the Station died some time ago, of consumption, and although his occupation did not lead him into direct contact with the dairy herd, his headquarters were within a few yards of the stable, and there is the possibility that his expectorations, containing the organisms of consumption, may have come in contact with and contaminated the food of the animals.

In conclusion we desire to add, that as tuberculosis or consumption in cattle has been proven to exist in the State, we would urgently recommend that no pure bred or high grade cattle should be imported without first having them tested or obtaining a guarantee that they had been tested at a recent date (previous to purchase) with tuberculin.

We would further recommend that owners of dairy stock, and especially vendors of milk, should, for their own benefit, both pecuniary and otherwise, and for the sake of public health, have their cows tested with tuberculin at regular intervals.

To be able to satisfy the mind of the public that he was disposing of milk from tested cows only, would be the finest advertisement a man in the business could have. And as a benefactor to his race in preventing the transmission of this terrible disease to numberless human beings (especially children), he would be
deserving, and would no doubt be the recipient, of inexpressible thankfulnes and gratitude at the hands of the public.

Very respectfully submitted,

S. B. STAPLES, D. V. S.,
W. H. DALYRMPLE, M. R. C. V. S.,
Veterinarians.

Note.—The milk from Lucy S., after isolation from the herd, on the 20th of September, was packed in ice and sent to Prof. W. R. Dodson, bacteriologist of the Station, for examination for bacillus tuberculosis. A most searching investigation found no trace of this microbe.  

W. C. S.