

**Report of Commission on the Cattle Plague / by Andrew Davidson,
Secretary to Commission.**

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REPORT

OF

Mauritius

COMMISSION

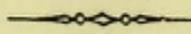
ON THE

CATTLE PLAGUE

BY

ANDREW DAVIDSON, F.R.C. P.

SECRETARY TO COMMISSION

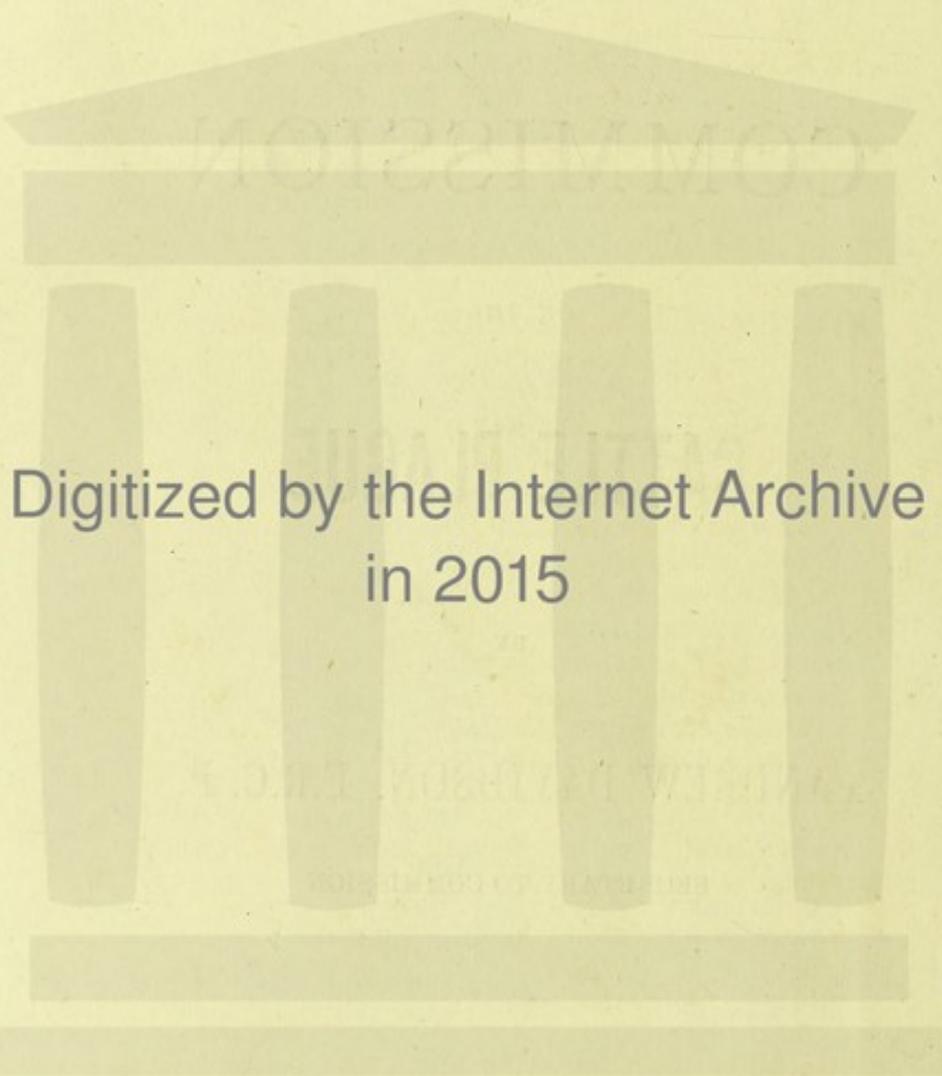


MAURITIUS :

GENERAL STEAM PRINTING COMPANY, GOVERNMENT STREET, 6.

1880

REPORT



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Appendix No.
To Minutes of Council No. of 1880.

Proclamation No. 34.

IN THE NAME of Her Majesty VICTORIA, of the
United Kingdom of Great Britain and Ireland, QUEEN.
&c., &c., &c.,

[SEAL.]

G. F. BOWEN. — *By His Excellency Sir GEORGE
FERGUSON BOWEN, G.C.M.G., Govern-
nor and Commander in Chief in and over
the Island of Mauritius and its Depen-
dencies, and Vice-Admiral of the same,
&c., &c., &c.*

To

The Honorable V. NAZ, C. M. G., Chairman,

— R. STEIN.
— E. ICERY.
— E. DUCRAY.

Colonel O'BRIEN, C. M. G.
E. LECLÉZIO, Esquire.
F. LOVELL, Esquire, C. M. O.
A. DAVIDSON, Esquire, M. D.
W. A. EDWARDS, Esquire, M. D.
H. VIGOUREUX, Esquire.
EDOUARD CARCENAC, Esquire.
ANTONY ROUGÉ, Esquire.
VINCENT GEFFROY, Esquire.
MARTIAL NOEL, Esquire.

By virtue of the powers and authority in me vested by
the Queen's Most Excellent Majesty I do hereby constitute
and appoint you the said

Honorable V. NAZ, C. M. G.,

— R. STEIN.
— E. ICERY.
— E. DUCRAY.

Colonel O'BRIEN, C. M. G.
E. LECLÉZIO, Esquire.
F. LOVELL, Esquire, C. M. O.
A. DAVIDSON, Esquire, M. D.
W. A. EDWARDS, Esquire, M. D.
H. VIGOUREUX, Esquire.
EDOUARD CARCENAC, Esquire.
ANTONY ROUGÉ, Esquire.
VINCENT GEFFROY, Esquire.
MARTIAL NOEL, Esquire.

to form a Commission to enquire into the origin and progress
of the cattle disease now prevailing in the Colony; to

examine the measures taken to prevent its spread, and to suggest such practical means as may be likely to prevent its recurrence.

GOD SAVE THE QUEEN.

Given at Government House, Mauritius, this 24th day of July 1879.

By His Excellency's Command :

H. N. D. BEYTS,
Acting Colonial Secretary.

REPORT
OF THE
COMMISSION APPOINTED BY H. E. THE GOVERNOR
BY
PROCLAMATION No. 34 OF 1879
TO
INQUIRE INTO THE CATTLE PLAGUE

By the terms of His Excellency's instructions, the Commission had first to enquire into the origin of the reigning epizootie, and the measures to be taken to prevent its spread ; and, secondly to suggest the means to be adopted to prevent its reintroduction into the Colony.

2o. In accordance with these instructions, the Commission met on the 26th of August, and resolved to appoint a Sub-Committee to draw up a series of questions to be circulated among the planters and owners of Cattle with the view of obtaining the results of their observations and experience.

3o. The Commission further appointed Dr. Davidson as their Secretary, with instructions to follow out certain lines of inquiry indicated by them.

4o. As the disease unfortunately still exists in some parts of the Island, it is impossible to close the history of this outbreak, and sum up the total loss that it will inflict on the Colony.

5o. The Commission are, however, of opinion that the information already obtained is sufficiently full and precise to justify them in closing the inquiry, in summing up the results arrived at, and in submitting their report and accompanying documents to His Excellency.

6o. The inquiries of the Commission have led them to the conclusion that the reigning epizootie is identical with the Rinderpest—a disease which is endemic in Russia, and in some parts of Hungary ; which has broken out at various times in England, France and other countries of Western Europe, and which raged in Mauritius during the years 1844-48. The symptoms and pathology of the disease as observed in Mauritius are fully described in annexure (E), and the considerations which have led the Commission to regard it as identical with the Rinderpest are detailed in annexure (C), entitled "The nature of the reigning epizootie."

70. The facts elicited in the course of this inquiry clearly show that the disease did not originate spontaneously in the Colony, but was introduced from without ; and this conclusion, arrived at from a careful consideration of the circumstances connected with its outbreak, is in perfect accordance with all that is known of the disease.

The International Congress of Vienna in 1871-72 expressed the opinion of the leading men of science upon this point as follows :

(a). That the cattle plague is exclusively propagated by contagion.

(b). That it is not susceptible of being generated spontaneously in the countries where it is not endemic, but is imported into these countries in the same manner as Asiatic Cholera.

(c). That its place of immediate origin, which it is of the highest importance to determine, is the steppes of Russia and of Hungary, where the disease is endemic and to which it is perhaps introduced from divers regions of Asia.

80. Information, obtained in answer to inquiries officially addressed to the Authorities of Natal, Nossibé, and Aden, satisfies the Commission that the Rinderpest does not prevail, and has not lately prevailed in Natal, Nossibé, or on the West coast of Madagascar. But there is ample evidence that it existed at Aden, before and at the time that it broke out in Mauritius. (Annexures G. & H.)

90. Some isolated instances of considerable losses of cattle in the District of Pamplemousses occurred in the month of March ; but it has been clearly established that the disease in these instances was not the Rinderpest which only broke out at Rochebois towards the middle or end of April 1879. (See Annexure (A.)

100. It has been ascertained that cattle, sheep and hides were introduced into the Colony from Aden in the beginning of April by the Messageries Maritimes steamer "Dupleix." It has further been shewn that the hides and some of the sheep were taken out to Rochebois. The sheep having been sent to the estate on which it is believed the disease first appeared ; and the hides to a house in the same locality. And, as it has been proved beyond doubt by scientific and official inquiries that the Rinderpest may be conveyed by means of the wool of sheep, or by hides, and further, that it never originates spontaneously, the Commission can only infer that it was, in this instance, introduced from Aden, where the disease was then prevalent, by means of these sheep or hides.

11o. While these facts clearly point to Aden as the source from which the disease was derived, and to the "Dupleix" as the vessel by which it was introduced, the Commission must, in justice to the Company, record that it has been satisfactorily shewn that the cattle by that vessel were shipped in good condition, that they exhibited no signs of the disease during the voyage, and remained healthy after having been landed in the Colony.

The officers of that vessel are thus free from blame in respect to its introduction.

12o. The disease appears to have existed in Mauritius for a fortnight at least before it was reported, but there is no evidence that it was intentionally concealed from the Authorities. (See Annexures B, I & L.)

13o. After the disease was reported, another week or more elapsed before the law, which only provided against epidemics affecting human beings, could be extended to epidemics affecting cattle, and before regulations made under the amending Ordinance, could be promulgated to prevent the movements of cattle, and to prohibit the removal of manure, litter, fodder and other substances capable of carrying the infection.

During this period, when it might have been limited by restrictive measures, or stamped out by the timely destruction of affected animals, the disease not only spread into neighbouring herds but it was carried beyond the district in which it commenced.

14o. The nature of the epizootie, its symptoms, pathology, treatment, and the results of inoculation form the subject of several distinct papers which the Commission annex to this report. (See Annexures C, D, E, & F.)

15o. The Commission owe it to the willing and intelligent co-operation of the sanitary authorities and planters and owners of cattle, that they have been able to collect so much important information regarding the progress of the disease in the different districts, the mode in which it was propagated, and the mortality which it occasioned. (See Annexures J & K.)

16o. In conclusion, the Commission having carefully considered what measures should be adopted:—

(a). To prevent the re-introduction of the disease into the Colony,

(b). To stamp it out, or to limit its spread in the event

of its re-introduction, have the honor to submit the following suggestions.

I

Measures suggested for preventing the re-introduction of the Cattle Plague.

1o. As the Rinderpest does not originate spontaneously in the Colony, it is evident that our security depends entirely upon effective quarantine regulations.

2o. To prevent the re-introduction of the disease, no horned cattle, pigs, sheep or goats ; nor skins, hides, horns, straw or hay coming from any country where cattle plague prevails or has recently prevailed should be permitted to be landed.

3o. Before any cattle are permitted to be landed a clean bill of health should be obtained, and a declaration demanded and received from the captain of the vessel that, to his knowledge, no contagious cattle disease prevailed in the port from which he came, or in the adjacent country, or in any of the ports or places at which he may have called, and further that no disease has existed among the cattle during the voyage.

Provided, that it be lawful for the Board of Health to give permits to land cattle, or other animals, arriving by ships not provided with a bill of health, when, after due inquiry and inspection, they are satisfied that the cattle are free from disease, and that no contagious cattle disease prevailed in the country from which they were brought.

4o. The utmost care should be exercised and enforced with regard to the inspection of cattle arriving in our Ports ; and if any suspicion of disease arises, the cattle, ship, and cargo should be placed in quarantine for such necessary time as shall be determined by the Sanitary Authorities ; and for this purpose some fit and proper place should be set apart as a quarantine station for cattle,

5o. The inspection and landing of cattle, at present conducted under the supervision of the Customs Department, should be placed under the direct control of the Sanitary Authorities, who alone shall be entitled to grant permits for landing.

II

Measures to be adopted when the disease has appeared in the Colony.

1o. When any fatal and apparently contagious disease occurs, the proprietors of cattle, or in their absence, the attendants in charge of them, should be compelled to report

the same without delay to the Sanitary Authorities, under severe penalties.

20. On the outbreak of the Rinderpest, a census should be immediately taken of the cattle in the affected district, and every animal included in the census should be marked with a brand so that no cattle could be surreptitiously removed from one place to another; and their removal from the property to which they belong should be prohibited under severe penalties.

30. When the cattle plague, or any contagious disease of horned cattle or other animals is declared, the Sanitary Authorities should have power to put into force at once the provisions of the law, and to declare the locality in which such disease has appeared an infected area.

40. The Sanitary Authorities should have power to define the limits of such infected areas.

50. Within the limits of an area declared to be infected, all movements of cattle, and all communications not absolutely necessary should be prohibited, and the prohibition should be enforced by the Police or by the Sanitary Officers. The infected locality should in fact be placed in quarantine; and the removal of cattle or other animals, grass, fodder, litter or manure from the infected area should be punished by severe penalties.

60. The Sanitary Authorities should have power to order the destruction of any cattle diseased or healthy within the infected area; and also to order the confinement or destruction of dogs, pigs, sheep, goats and poultry.

The time during which the present cattle plague might have been stamped out, was, as above explained, lost in amending the law and promulgating regulations, and, during that delay, cattle were freely moved to healthy Districts.

III

Measures to be adopted after the disease has spread over the Colony.

10. The slaughter of healthy cattle, excepting in special circumstances, need not be resorted to, when the cattle plague has extended over a large part of the Colony.

20. The remaining healthy localities should then be protected by the following measures:

(a). Healthy herds should be removed as far as possible from the centres of infection, and watched not only by the proprietor but by Sanitary Officers.

(b). If a river flows from an infected locality, the cattle should not be allowed access to it.

(c). The leading roads should be guarded so as to prevent, as far as possible, the introduction of cattle or animals, or any substances capable of carrying the infection, from infected localities. Further, no one from an infected locality should be allowed to go near the grounds on which the healthy cattle are grazed or the places in which they are kept without proper precautions having been taken for disinfection.

(d). No cattle from diseased districts should be allowed to pass over the roads leading through healthy areas.

(e). In the event of the disease breaking out in a healthy area, the diseased cattle, and the cattle that had been immediately in contact with them, should be separated, isolated, and guarded, and the parks on which they were grazed should not be used for the animals not affected.

IV

The following points should be attended to under all circumstances.

1o. The attendants on the sick cattle should not be allowed to come near the healthy cattle. Sanitary Officers after having been in contact with diseased animals should be immediately desinfected, before entering healthy localities.

2o. Sick cattle should be separated at once from the rest of the herd and placed under sheds.

3o. Moribund cattle should be killed at once, and all dead cattle buried as soon as possible in graves 7 feet deep, having been previously covered with lime. They should not be dragged along the ground to the pits, but conveyed in carts drawn by horses or mules. The carts and horses used for this service, should be kept out of the way of healthy animals, and should be disinfected.

4o. Manure should be buried, litter burned, rooms disinfected with burning sulphur, and wood-work should be cleaned by boiling water mixed with carbolic acid. Clothes should be soaked in boiling water, utensils of little value that may be infected should be burned when possible.

V. NAZ,
President.

ANDREW DAVIDSON,
Secretary.

Annexure A.

INQUIRY

INTO THE NATURE OF THE CATTLE DISEASE
IN PAMPLEMOUSSES, IN MARCH 1879.

1. Report by Secretary.
 2. Copy of letter to Mr. Le Breton.
 3. Mr. Le Breton's reply.
 4. Letter from Mr. Le Conte.
 5. Examination of Mr. Gautray, V. S.
-

*Inquiry into the nature of the Cattle Disease that prevailed
on L'Espérance and Ville Valio Estates in March 1879.*

In March last, a number of cattle died rather suddenly on L'Espérance and Ville Valio estates, in the District of Pamplemousses. This was reported to the General Board of Health, and an inquiry was instituted at the time; but after the epizootie had declared itself in May at Rochebois, suspicions arose that the disease on these two estates may have been the real commencement of the plague that has since spread over the Island. It became necessary, therefore, to inquire anew into the nature of that outbreak, and the information now obtained is sufficient to enable us to come to a decision upon the point.

On the 18th of March, 1879, Mr Gautray, the Veterinary Surgeon, reported to the President of the Board of Health that he had examined a bullock that had died the previous day on L'Espérance Estate. The animal had been buried before he arrived, but he had it disinterred for examination. In his report he states that the body was in an advanced state of decomposition; but that, judging from the lesions observed, he was of opinion that the animal had died from "Sang de Rate" a disease which he states to be allied to charbonneuse fever.

When that report was made four (4) bullocks had died; and he states that they all presented the same symptoms as the one he examined. He does not however mention what those symptoms were.

In order, if possible, to obtain fuller information regarding this disease, the Secretary had an interview with Mr. Gautray, whose statements are given in the paper annexed.

Mr. Le Breton the manager of L'Espérance Estate was also communicated with ; (see copy of letter and reply) who has very satisfactorily replied to the questions forwarded to him.

About the same time, a disease appeared in a herd belonging to Mr. Le Conte on Ville Valio Estate.

Mr. Le Conte informed the President of the Board of Health, in a letter dated March 18th, that he had up to that time lost 13 out of 120 head of cattle.

Mr. Gautray was ordered to visit the estate and report. His report is dated March 24th, and he concludes as follows:—"I do not hesitate to declare that the 14 or 15 head of cattle which have died during about a month past on the said estate (Ville Valio) have succumbed to "Sang de Rate," a disease which is remarked in herds when heavy rains succeed to great droughts. This disease is almost always sporadic, and disappears after some of the cattle have fallen victims to it."

In a personal interview with Mr. Gautray, he stated that he was quite certain that the animal he examined at Ville Valio on the 24th of March presented none of the *post mortem* appearances observed in the reigning epizootic.

Mr. Le Conte was also asked for further particulars. His reply refers us to the answers given to the questions sent out by the President of this Commission.

After careful consideration of the original papers forwarded to the Board of Health, and the additional information received from Mr. Gautray, Veterinary Surgeon, and from the proprietors of the Estates of L'Espérance and Ville Valio, it seems clear that the disease in March was quite different from the cattle plague now reigning in the Colony.

The following are the chief reasons for coming to this conclusion:—

(a). The disease at Pamplémousses in March was either not at all contagious, or only slightly so. It is true that Mr. Le Conte lost 13 or 14 cattle out of a herd of 120 ; but when the real plague broke out in his herd in June it spread rapidly, and within little more than a week the whole herd had become affected.

Referring to the real plague Mr. Le Conte says ; " a
 " single animal was observed to be diseased on June 3rd.
 " On the next Monday (June 9th) I observed
 " at 5 o'clock in the morning6 cases
 " 10 " " "8 other cases
 " 4 " p. m.....12 more
 " Tuesday (June 10th) in the morning..... 19 new cases."
 In other words, the whole herd in the locality became
 affected in little more than a week. Here the disease seems
 to have been introduced into the herd by that animal which
 was observed to be ill on June 3rd. The others must have
 taken the disease from it, as they were attacked all together
 about a week later.

(b). On L'Espérance Estate only four (4) animals
 died within a period extending over 15 or 16 days ; and
 the rest of the herd escaped entirely. This is not the his-
 tory of an outbreak of Rinderpest.

(c). The symptoms and progress of the malady differed
 from those observed in the present epizootic.

(d). The pathological lesions, as testified to by Mr.
 Gautray, were not those observed in the Rinderpest.

*Copy of a letter to Mr. Le Breton anent disease among
 his Cattle.*

November 4th, 1879.

Cattle Plague Commission.

To

Mr. Le Breton,
 Administrator of "L'Espérance Estate."

Sir,

In March last you lost several of your cattle within
 a few days of each other, and Mr. Gautray the V. S. made
 an autopsy of one of them by the orders of the General
 Board of Health, and his report is now before me:

2. The Commission for inquiring into the Cattle Plague
 is desirous of having as full information as possible regard-
 ing the disease in March last on your estate ; and I have the
 honor to request that you will kindly state all you know
 upon the subject, and in particular, I beg that you will

answer the following questions which I have drawn up on behalf of the said Commission.

QUESTIONS.

1. How many Cattle did you lose in March last, ? and state if possible the dates on which they died.
2. How many cattle had you at that time ?
3. How was your herd composed. That is : how many were bullocks working on the estate, ? how many for slaughter ? how many cows ?
4. How many of the cattle were reared in the colony, and how many were imported ?
5. State the latest periods at which the imported cattle were bought ; and, if possible, give the names of the ships by which they were introduced.
6. In March last, had you any cattle lately introduced from Aden or Madagascar ?
7. Were the symptoms of the disease in March at all similar to those observed in the present epizootie ?
8. Did it seem to you that the disease in March was contagious ?

I have the honor to be,

Sir,

Your obedient servant,

ANDREW DAVIDSON,

Secretary to C. P. Commission.

Etablissement L'Espérance,

Pamplemousses, 15 Novembre 1879.

A

Mr. A. Davidson,

Secrétaire de la Commission
sur l'Epizootie.

Monsieur,

En réponse à la lettre que vous m'avez adressée le 4 Novembre courant, relativement aux bœufs qui sont morts sur la propriété, je viens vous faire savoir que, 1o. pendant les mois de Janvier et Février 1879, quelques bœufs sont morts sur la propriété. J'ai attribué la mort de ces animaux plutôt à la vieillesse et à la fatigue qu'à la maladie.

2o. En Mars j'en ai perdu quatre aux dates ci-dessous : le 10, le 14, le 17 et le 26.

Un d'entre eux a été examiné par Monsieur Gautray, qui, ainsi que vous le dites dans votre lettre, en a fait son rapport.

3o. A cette époque, le troupeau se composait de 40 bœufs, dont huit travaillant sur la propriété, et le reste en paccage à la Baie du Tombeau.

4o. Tous ces bœufs provenaient de Madagascar.

5o. La dernière acquisition que j'ai faite remonte à l'année dernière, quelque temps avant la coupe. Je regrette de ne pouvoir donner le nom du navire.

6o. D'après mes observations les symptômes de la maladie, en Mars, n'étaient pas du tout ceux observés pendant l'Épizootie.

7o. A cette époque (Mars) il m'a semblé que la maladie était contagieuse.

En vous priant d'excuser le retard que j'ai apporté à vous faire une réponse,

J'ai l'honneur d'être,

Monsieur,

Votre bien dévoué serviteur

ED. LE BRETON.

Reply of Mr. Le Conte to Inquiries addressed to him :

Ville Valio,

Port Louis, 12 Novembre 1879.

Monsieur,

En réponse à votre lettre du 4 ct. que j'ai reçue hier soir seulement à six heures, j'ai l'honneur de vous informer que j'ai envoyé à l'Hon. V. Naz, président de la Commission d'Enquête, un rapport dans lequel je répons, je crois, à toutes les questions que vous m'adressez, autant du moins que j'ai pu les comprendre dans une langue qui n'est pas la mienne.

Veillez être assez bon pour en prendre connaissance. Si ces explications vous paraissent insuffisantes, je demeure à votre disposition pour les compléter.

Veillez agréer, Monsieur, l'expression de mes sentiments distingués.

J. LE CONTE.

Examination of Mr. Gautray, V. S.

I remember having examined a bullock on L'Espérance Estate in the Pamplémousses District in March. I concluded at the time that the animal had died of "Sang de Râte," as the liver and spleen were very much enlarged and congested. I believe that the other cattle on the same estate that died about the same time presented symptoms similar to the one I examined. I am satisfied that the mortality on that estate in March last was not due to the peste bovine.

I went to Ville Valio Estate in March and examined a bullock that had died the morning of my visit. It presented none of the appearances observed in animals which have died from the present epizootie, but evidently died of Sang de Rate. Sang de Rate is perfectly distinct from the contagious typhus.

2. I first saw the epizootie in May at Madame Jamet's property. I think I went there on the 5th of May, and I returned next day and performed an autopsy on one of her bullocks. I at once suspected that the disease that had appeared in Madame Jamet's herd was the peste bovine, and I gave the instructions necessary on that assumption.

When I visited Madame Jamet's property she told me that Mr. Pierre, a neighbour, had also lost several cattle. I saw Mr. Pierre the same day, and he denied that any of his cattle had died.

3. I call the disease contagious typhus, or peste bovine. I am not acquainted with the term "Rinderpest," and cannot say if it is applied to the same disease.

I arrived from France in 1844, and witnessed the same disease among the cattle then: The disease which I saw here in 1844 was precisely the same as that now raging. From what I remember, I do not think the epizootie in 1844 continued in 1847 and 1848; but I am quite sure that I had not met with a single instance of the disease from that time until I met it in Madame Jamet's herd.

4. I remember a drove of cattle having been taken from Fort William to the slaughter house on the 9th of June last. I assisted Mr Bradshaw in making autopsies of three of these animals. Mr Bradshaw had suspected that they were affected with the "peste bovine," and he gave it as his opinion after examination that they had the disease in its earliest stage. I am of opinion that these cattle were perfectly healthy, I saw no trace of disease about them.

5. I believe that the period of incubation is about 7 or 8 days. I have no facts to quote in support of this; but I know that this is the opinion of authors.

November 1879.

Annexure B.**INQUIRY AT ROCHEBOIS & EXAMINATIONS**

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INQUIRY AT ROCHEBOIS,—OCTOBER 14TH, 1879.

Madame Jamet.

Herd before the epizootie.

On the 2nd of May last Mrs. Jamet's herd numbered 30 head, and consisted of 8 bullocks and 22 milch cows and heifers, all reared upon her own property.

Cattle kept in the park mixing with Mr. Pierre's herd.

The cattle were not kept in-doors, but were pastured on the neighbouring land, where they mixed freely with those belonging to Mr. Pierre. The cattle fed entirely on grass & Acacia, and drank from the stream running close to the property.

Previous condition of Made. Jamet's herd.

Before the out-break of this epizootie, her herd had never suffered from any disease, and she had never lost any of her cattle.

Date on which the disease broke out.

Madame Jamet is unable to state precisely the day on which her cattle were observed to be affected; but she knows that it was about the beginning of May.

Whole herd died excepting one.

All her cattle died of the disease excepting one bullock which recovered, and which was afterward killed by the orders of the General Board of Health.

The whole herd took ill about the same time, and all died within a week, with the single exception already mentioned.

How she accounts for the out-break.

Madame Jamet is of opinion that her cattle contracted the disease from Mr. Pierre's herd. According to her belief the disease existed among Mr. Pierre's cattle before it appeared among hers. This she heard from her own servants and household, and from various other parties, both at the time and afterwards.

After her cattle were affected, the epizootie broke out in the herd belonging to her neighbour Mr. Renaud. Mr. Renaud's cattle often grazed along with hers and those of Mr. Pierre, so that they may have got this disease from either.

Madame Jamet had also a small flock of she-goats, numbering 11 in all. She lost 5 of them about one month after her cattle had died. She does not think that they died of the epizootie.

INQUIRY AT ROCHEBOIS.

Mr. Jean Pierre François.

On October 14th, I visited the property of Mr. Pierre at Rochebois, but he was absent. The following day Mr. Pierre called at the Civil Hospital and gave the following information :

- Composition of herd. Mr. Pierre states that he had 40 bullocks at the time the epizootie began,—no milch cows or heifers.
- All from Madagascar; 12 from "Touareg" of 28th April. All the bullocks came from Madagascar, at different times,—from Vohemar, Nossi-Bé, Baly, and Tamatave. Twenty-eight of them had been for six or seven months in the Colony ; but twelve were got from the Steamer "Touareg" on the 28th of April last.
- Previous condition of the cattle. Although he lost a few bullocks at every change of the season, no extraordinary mortality had ever occurred in his herd before the present epizootie ; and he (Mr. Pierre) knew of no disease among the cattle at Rochebois before the out-break of the epizootie.
- Date of out-break. He states that he lost four bullocks about the 2nd or 3rd of May last. He cannot be more precise about the date.
- Disease restricted to those landed from "Touareg." The four animals that died were from the "Touareg" of April 28th.
- Rest of herd sent to the Abattoir. Hearing that an epizootie prevailed at Rochebois, and having already lost four of his cattle, he sent the rest to the Slaughter house. The eight remaining of those landed from the "Touareg" were thus disposed of.
- The four animals that died were weak and had diarrhœa ; nothing more was observed about them.
- Herd belonging to Mr. Pierre at Vallée des Prêtres. Mr. Pierre had nine head of cattle at Vallée des Prêtres which had no communication with those at Rochebois. They were reared in the Colony, remained healthy, and were subsequently killed by order of the General Board of Health, as the disease had broken out in the neighbourhood.
- Flock of Sheep, some from "Dupleix" of April 4th. Mr. Pierre had a flock of sheep at Rochebois. He believes that some of them were ex-"Dupleix" of April 4th. They remained healthy.
- Bullock from "Touareg" that died on the first day. One bullock bought by Mr. Pierre ex-"Touareg" of April 28th was weak, thin, and could not walk. It had also diarrhœa. It died the same night.
- Mr. Pierre's opinion regarding the source of infection. Mr. Pierre states it as his belief that his cattle got the disease from Madame Jamet's herd.

Examination of Mr. Magnac,—Petite Rivière.

Date when disease appeared May 16th. He first observed the disease among his cattle on the 16th of May last, and reported it the same day.

Composition of herd. Creole cattle, also cattle from Aden, Rodrigues, and Madagascar ex "Touareg." His herd numbered 70, consisting chiefly of Creole bullocks, cows, &c. There were also some from Aden and Madagascar.

He received some cattle from the "Dupleix" on February 8th; and 4 or 5 from the "Godavery" on the 4th of May.

He frequently received one or two animals privately from the Officers of the "Touareg." He thinks that for the four months previous to the out-break of the epizootic he had received one or two bullocks every time that Steamer came in.

He had also in his herd 3 bullocks from Rodrigues; these were received about six months before the disease made its appearance.

His herd near to Mr. Pelte's. His herd was kept at Petite Rivière. Mr. Pelte had a herd on contiguous land. The two herds passed along the same road, and drank from the same stream.

His cattle were not housed, but allowed to graze in the open.

Some of Mr. Bremon's cattle strayed on his property shortly before the Epizootic began. A day, or perhaps two days, before his cattle became affected, one or two Madagascar bullocks belonging to Mr. Bremon got mixed with his herd, and remained with them all that night. He does not know what became of them afterwards. He has no reason to believe that at that date any of Mr. Bremon's cattle were sick. Mr. Magnac had not heard of any disease in Petite Rivière at the time his cattle began to shew symptoms of the disease.

Removal of Mr. Pelte's herd. Mr. Pelte's cattle were removed from Petite Rivière the same day that the disease appeared in Mr. Magnac's herd, and were taken to Mare d'Albert where he understands they afterwards took the disease.

Mr. Bremon was in the habit of driving his bullocks from Point aux Sables along the road adjoining Mr. Magnac's property.

Removal of Mr. Loumeau's herd from Rochebois to Petite Rivière. Mr. Loumeau, when he heard that the disease had broken out at Rochebois, removed a part of his herd from thence to Nermont in Petite Rivière, near the sea shore. The road which Mr. Loumeau's cattle took in going to Nermont passes close to Mr. Magnac's property.

Condition of herd before the epizootic appeared. Mr. Magnac states that before the actual out-break of the disease his herd was perfectly healthy.

Note regarding the Cattle ex "Godavery," May 4th.

The bullocks received from the "Godavery" (May 4th) were in perfect condition, and exhibited no signs of disease until the whole herd took ill. He never exchanged any cattle with Madame Jamet or with any body else.

The cattle from the "Godavery" were landed at Fort George. They probably did not remain there more than an hour. They were taken through the town to Petite Rivière. He received no sheep by that Mail, and he does not know if any were landed.

The cattle that Mr. Magnac received from the "Godavery" in May were to the best of his belief Aden cattle, and he is able to distinguish Aden cattle from others.

Examination of Mr. Jules Loumeau.

Two herds, one at Rochebois, the other at Petite Rivière. Mr. Loumeau had two herds of cattle before the out-break of the epizootie,—one at Rochebois, numbering 50 head; the other at Petite Rivière, consisting of 26 animals.

Removal of part of the Rochebois herd to Petite Rivière on May 16th. He removed 20 head of cattle from Rochebois to Petite Rivière on the 16th of May last.

Composition of herd at Rochebois. The herd at Rochebois was entirely composed of cattle from Madagascar, but had been introduced for some time; the last introduction having been in January, 1878.

In the Camp on his estate there were a number of cows which were reared in the Colony.

Composition of herd at Petite Rivière. The herd at Petite Rivière was entirely composed of cattle from Madagascar; and the latest introduction was in January 1878. His property at Rochebois is about one mile from Madame Jamet's, and the same from Mr. Renaud's; but his servants were in the habit of passing through Madame Jamet's ground in going to and coming from town.

No knowledge of any direct communication with herds previously affected. He does not think that his cattle could have come directly in contact with Mr. Pierre's, Madame Jamet's or Mr. Renaud's herds.

He cannot say how his herd contracted the disease.

Disease appeared about the same time in herds at Rochebois and Petite Rivière. The epizootie appeared about the same time among the cattle that remained at Rochebois and the herd at Petite Rivière.

The date of the report at Petite Rivière is May 22nd.

Do. at Rochebois „ 29th.
but six had died five days before, viz: on the 24th.

He does not know of any communication having taken place between his herds or servants and these belonging to the other persons about Tombeau Bay, such as Mr. Le Conte or Mr. Wiché of "La Bergerie", where the disease afterwards broke out.

Indians' cattle at Petite Rivière affected about the beginning of June.

The Indians on his estate at Petite Rivière had several cattle. They were kept close to where the herd was grazed. They took the disease about the beginning of June.

Examination of Mr. Docinthe, November 4th, 1879.

Herd of 33 head at Petite Rivière ex-"Barentin".

The 33 head of cattle, reported ill on the 29th of May, at Petite Rivière were all bullocks, which arrived in the end of last year from Tamatave, ex "Barentin."

Had been brought from Vallée des Prêtres.

They had been removed from "Vallée des Prêtres" to Petite Rivière (property D'Hotman) a few days before the epizootie broke out at Rochebois. He does not know the exact day of removal. (Since then he has referred to his notes and finds that they were removed from the 7th to the 10th of May).

Where they mixed with herds belonging to Marie & Duff & Co.

Mr. Docinthe's cattle, while at Vallée des Prêtres, mixed with bullocks belonging to Mr. Marie, which were derived from various sources; also with a herd belonging to Duff & Co., which he believes were introduced by the "Grimaldo" last year, and came from Angonsy in the north of Madagascar.

Some bullocks were received by Mr. Docinthe from the "Touareg" before March last, (but he is not quite sure of the date); they were sent to Vallée des Prêtres; but at the time or shortly before the commencement of the Epizootie they were removed to Batterie Dumat.

Herd at Batterie Dumat ex "Touareg" & "Java Packet."

One or two weeks before the out-break of the epizootie he lost in all about 20 bullocks at Batterie Dumat; and all of these had come either by the "Touareg" or the "Java Packet." He does not think that the mortality was owing to the reigning disease, but he ascribed it at the time to the animals being in bad condition.

Reasons for removing cattle from Vallée des Prêtres to Petite Rivière.

The reason why Mr. Docinthe removed his cattle from Vallée des Prêtres to Petite Rivière was that considerable numbers of them were dying off. His herd at Vallée des Prêtres originally consisted of 40 to 45 head, but it had got reduced to 33 to 35; and for this reason he removed them to D'Hotman's property at Petite Rivière, where the pasture was better. This property is close to the Police Station. Mr. Docinthe does not believe that his cattle got the disease from Mr. Bremon's herd (Petite Rivière), as there was no communication between the two herds.

He cannot say how his herd got the disease.

Examination of Mr. Sibaly,—October 28th.

Mr. Sibaly's herds at Petite Rivière and Pointe aux Sables.

Messrs. Sibaly and Brémon had no cattle at Rochebois when the epizootie broke out.

They had two herds, one at Petite Rivière, with Mr. Naye, at the 3rd mile; and the other at Pointe aux Sables.

At Petite Rivière how composed.

The herd at Petite Rivière with Mr. Naye numbered about 21 head. They were all Malagasy bullocks, and had been imported long before the epizootie appeared. He is quite sure that none of them had been recently introduced. Before the epizootie the herd sometimes numbered 80 to 120. Referring to the report of the Sanitary Officers respecting the out-break of the disease at Petite Rivière on Mr. Naye's property, on the 30th of May last, in which it is stated that the herd there numbered at that time *three hundred*, he states that his herd there numbered only about 21 head.

At Pointe aux Sables how composed.

He states that the herd at Pointe aux Sables numbered about 110, and were composed of bullocks, cows, &c. He often brought bullocks from Pointe aux Sables to the Slaughter house to be killed for consumption. He also drew upon his Petite Rivière cattle for slaughter. He sometimes removed cattle from Pointe aux Sables to Mr. Naye's, but he never sent to Mr. Naye any animals of recent introduction.

Bullocks ex-"Touareg" March 27th.

He bought 70 bullocks ex-"Touareg" on the 27th of March, but he had none on April 9th or 28th. Those received from the "Touareg" on the 27th March were sent to Point aux Sables.

He had no cattle from the "Java Packet" or the "Holland."

He often sold cattle to other persons before the epizootie, but he cannot give dates or particulars.

Bullocks sent to Mahebourg on May 19th.

On the 19th of May, he sent 15 bullocks from Pointe aux Sables to Mr. Cowie at Mahebourg. No disease broke out among them. After having been kept for some time under observation, they were slaughtered.

Bullocks sent to Rochebois on May 19th.

On the same day (May 19th) he sent about 41 bullocks to the Slaughter House at Rochebois; but at that period his herd was free from disease.

Disease appeared at Pointe aux Sables and Petite Rivière at same time.

The disease broke out at the same time in the two herds at Pointe aux Sables and at Mr. Naye's (May 30th) date of Report. Mr. Magnac's property is at the distance of a mile from Mr. Naye's, and about two miles from Pointe aux Sables; and at the time that the disease broke out on Mr. Magnac's property his herd was near to Pointe aux Sables, and the two herds (Mr. Magnac's & Mr. Sibaly's) drank from the same stream. Some of Mr. Magnac's cattle were also found dead on Mr. Sibaly's property.

Evidence of communication with Mr. Magnac's herd.

Some of Messrs. Brémon & Sibaly's cattle also strayed on Mr. Magnac's grounds and remained on his grounds during the night. This was a day or so before Mr. Magnac's cattle became affected. He does not know where the stray cattle were taken to, but he believes they were sent back next morning either to Pointe aux Sables or to Mr. Naye.

Animals ex-"Dupleix" and "Godavery." Mr. Sibaly was in the habit of receiving cattle from the "Dupleix" and "Godavery." They were always sent to Point aux Sables.

On April 4th he received 5 cattle & 15 sheep from 'Dupleix.'

NOTE.—Mr. Sibaly usually gets bullocks from the French Mail; they are landed at Fort George. They do not remain there above a quarter of an hour. He is not able to say what becomes of the sheep, because they are not unfrequently landed to graze and then shipped again when the Mail leaves. Mr. Sibaly had no mortality among his cattle in April either at Vallée des Prêtres or Point aux Sables. He thinks that if he had bought any sheep from "Dupleix" on April 4th, he would have taken them to Pointe aux Sables.

Examination of Mr. Brunet,—October 27th.

Herds in Vallée Pitot and Vallée des Prêtres. Mr. Brunet has two herds, one in the Vallée Pitot, and the other in the Vallée des Prêtres.

His cattle in the Vallée des Prêtres mix, more or less, with those belonging to Marie, François & others.

Herd in Vallée des Prêtres derived from various sources and mixed with other cattle. The bullocks composing this herd were bought from different ships. Bullocks were bought from the "Touareg" every time she came in; and there were also cattle in his herd from the "Java Packet" and the "Holland."

Herd in Vallée Pitot mostly creole. The herd in Vallée Pitot was mostly Creole, along with a few Malagasy animals; but he thinks that there were none of recent introduction. Of this, however, he is not quite sure. He is not certain that there was no communication between these two herds.

Bullocks ex-"Touareg" on 28th April sent to Vallée des Prêtres and then Slaughtered. He sent the bullocks which he received from the "Touareg" of the 28th April to Vallée des Prêtres. He thinks that they were slaughtered for consumption soon after their arrival.

Supposed composition and derivation of herd arrested on the road to the Slaughter House May 21st. He states that the 25 head of cattle arrested by Mr. Bradshaw on the 21st of May, while on their way to the Slaughter house, and which were found to be affected with the epizootie, were composed of about 20 bullocks belonging to other butchers, and which were brought from the Vallée des Prêtres, and 5 belonging to himself, coming from Vallée Pitot direct. He is unable to say whence these 5 bullocks originally were derived, or at what date they were introduced.

Visited Mr. Renaud's property at Rochebois on the 4th October.

NO ONE WAS FOUND AT HOME TO GIVE ANY INFORMATION.

Mr. Renaud came to the Civil Hospital on the 15th October, when I obtained the following particulars.

Mr. Renaud's herd. His herd consisted of about 25 head of cattle, all bullocks, from Madagascar, landed from the "Touareg" on the 28th of April last.

Date at which disease appeared. The disease, he thinks, appeared among his cattle on the 12th of May; by the 14th he had lost several animals; and they all died off in a few days, excepting one. His cattle mixed with those of Mr. Pierre.

The symptoms of the disease of which his cattle died were those of the reigning epizootie.

No treatment was adopted.

Mr. Renaud's herd at Morne Brabant. Mr. Renaud has another herd at Morne Brabant. The cattle of which this herd consists were also introduced by the "Touareg" but arrived some months before.

Mr. Nayna, Rose Hill,—October 27th.

Bullocks bought before epizootie pastured at Beau Bassin. Before the epizootie, Mr. Nayna generally bought 10 to 20 bullocks from the "Touareg" every time she came in. These were brought up at once and pastured on the property of Mr. Goupil at Beau Bassin.

Doubtful condition of the cattle ex "Touareg" April 28th. He cannot state anything definite regarding those obtained from "Touareg" on the 28th of April last. He thinks they were in bad condition, that one of them died, and that some of the others when killed were found to be unfit for food. His evidence on these points seems vague.

Since the commencement of the epizootie, the bullocks bought ex "Touareg" have been slaughtered in town.

LA BERGERIE ESTATE.

Information received from Mr. Bouras on October 28th.

Herd at "La Bergerie." The herd at "La Bergerie", belonging to the Credit Foncier, numbered 33 head.

The cattle on the estate belonging to Mr. Wiché numbered 68 head.

From Madagascar, date of introduction unknown. All these cattle were Madagascar bullocks. Mr. Bouras cannot say when, or by what ships, they were imported.

No communication
with previously infected
places.

When the disease broke out on "La Bergerie" it had already destroyed the herds of Madame Jamet, Mr. Pierre, and Mr. Renaud at Rochebois, and that of Mr. Magnac at Petite Rivière ; but Mr. Bouras does not know of any communication having taken place with any of those herds.

After the disease broke out on "La Bergerie" the cattle belonging to a Mrs. Ameerum in the neighbourhood became affected. No intercourse is known to have taken place between the two properties.

Previous condition
of herd.

Before the disease broke out, the cattle were in perfect condition.

Date of out-break.

The disease was first observed on the 17th May.

Further questions tending to the elucidation of the out-break at "La Bergerie" were sent to Mr. Wiché, and repeated solicitations were addressed to him for a reply—but no answer was received.

Annexure C.

THE NATURE OF THE REIGNING EPIZOOTIE

The Rinderpest or Peste Bovine endemic in Russia.

Different out-breaks in England and other countries.

Its appearance in Mauritius in 1844.

The loss it occasioned in 1844—1848.

The Rinderpest or cattle plague of English authorities, the typhus contagieux or peste bovine of French writers, is a disease endemic in the Steppes of Russia, which has at various times ravaged the different countries of Western Europe. It broke out in England in the year 1714, after apparently having been absent for five centuries, and again in 1747 and 1757, and more recently in the years 1865, 1866 and 1867. During the last out-break in England, it is calculated to have caused the loss of above 300,000 head of cattle, and was only finally stamped out by the compulsory slaughter of affected herds and severe restrictive measures.

It has also prevailed in India at various times and after considerable intervals of immunity. Thus, it is known to have visited that Country in the years 1795—96, 1828—1836. And again in 1843—44. It appears to have been re-introduced about the year 1864—spreading slowly from district to district up to 1870 ; and it is doubtful if it has even now entirely disappeared. It prevailed in Aden from March to September, 1879.

While the disease was raging in India in 1844,* it also broke out in this Colony, causing great loss to the owners of cattle, and it did not finally disappear until 1848, although several temporary and deceptive periods of quiescence occurred. The total loss of oxen during these four years is given by Mr. Ollivier at 14,245 besides 5,574 pigs, 796 she-goats, 52 sheep and 96 stags.†

* An extract from The New Mauritius Gazette of October 23 1823, shows that a disease raged among the Cattle at that time. It is clear, however both from the symptoms and post mortem appearances, that this was not the Rinderpest.

† The following account of the Symptoms of the Epizootie of 1844—48 by Ollivier shows that it is identical in every respect with the disease now raging :—

Symptomes premonitoires " Il a toujours été annoncé par un peu de rougeur et de tuméfaction du corps clignotant qui fait légèrement saillie sur le globe de l'œil, par des mouvements fébriles du panicule charnu, une diminution sensible de la sécrétion laiteuse chez les femelles, de l'inquiétude, de l'inappétence, et une constipation opiniâtre.

Premier stage : La bête est morne et taciturne, ou entre dans des accès de fureur qui se calment bientôt. Elle porte la tête et les oreilles basses et fait entendre des grincements des dents ; la soif est ardente et inextinguible, la malade recherche l'eau froide qu'elle déglutit avec précaution et à très petites gorgées...le muflle est lubrifié par des mucosités nazales ; les paupières se tuméfient, l'œil devient larmoyant et semble enfoncé dans son orbite : la diarrhée s'établit, elle est séreuse, et chaque dejection est précédée de tenesme suivi immédiatement du rejet de quelques gouttes de sang qui augmentent.....au fur et à mesure que

Rinderpest—general characters.

The Rinderpest, wherever it appears, is distinguished from every other cattle disease by its extreme contagiousness and extraordinary fatality ; by certain characteristic symptoms during life ; and after death by lesions, which, if they are not individually distinctive, are so collectively ; and lastly, by the immunity which one attack confers from subsequent infection.

Contagiousness.

When a single diseased animal has been introduced into a herd, all the others are attacked in from five to twelve days, and the greater number will succumb to its effects.

Transportability by man, animals &c.

The poison is transportable from place to place, and retains its virulence for an indefinite time ; it is also to a limited extent diffusible through the atmosphere, and is thus infectious at small distances. It is known to have been carried by a man who had been in contact with diseased cattle to a distance of 3 or 4 miles and communicated to a healthy animal by merely handling it.*

Healthy cattle have become infected by passing over a road which had been traversed by sick cattle some time before †. A herd may apparently be infected from a diseased animal passing over an Estate without coming into contact with the cattle ‡. It may certainly be conveyed by literie or grass impregnated with the secretions of diseased animals, †† and there is no reason to doubt, if it can be carried by the agency of man, it can equally be conveyed from place to place by means of the lower animals. The horns, hides and skins of diseased cattle, if not properly disinfected, may also be the means of propagating the plague, and of transporting the germs of the disease to distant places.

les phénomènes morbides progressent ; les urines sont transparentes peu abondantes et d'émission assez fréquente ; la vulve est le siège d'une vive irritation la rumination est totalement suspendue ; l'horripilation tégumentaire est permanente.

Deuxième stage : A cette période tous les symptômes énumérés augmentent d'intensité ; ainsi les muqueuses apparentes sont d'un rouge violacé et parsemées de taches ecchymotiques et pétechiales la respiration est accélérée et entrecoupée par des gémissements ; la bête se couche et se relève souvent ; la colonne vertébrale très sensible est voussée ; la queue est toujours portée horizontalement à sa base, et la malade témoigne de vives douleurs rectales en rejetant des matières alvines très sanguinolentes et infectes.

Troisième stage : La toux est fréquente et très douloureuse, la respiration devient de plus en plus accélérée et plaintive les femelles pleines avortent ; le décubitus est permanent ; l'adynamie est profonde les pupilles se dilatent et la mort ne tarde pas à mettre un terme à ces souffrances. Report p.p. 3 & 4.

* Report on India Cattle Plagues, p. 297. A similar instance came under the observation of Mr. Brownrigg, during the present epizootie.

† Report on I. C. P.

‡ See précis of replies to questions.

†† The Rinderpest was brought with hay from Holland to Portsoy in Scotland in 1770.

Diffusibility.

Distance to which it may be diffused through the air.

Regarding its diffusibility through the air, experiments seem to shew that, if proper precautions be taken to prevent any communication direct or indirect by means of men, animals, food, literie or utensils, the disease is not in ordinary circumstances propagated by infection through the medium of the atmosphere to a greater distance than 90 feet. * But I believe that this distance may be exceeded if the poison is concentrated from agglomeration of a large number of diseased animals. It must not be forgotten, that currents of air by carrying minute scales, which have fallen from the skin of diseased animals, or small portions of dried excretions or secretions, may transport the disease to very much greater distances.

Symptoms of the Rinderpest.

The symptoms of Rinderpest are distinctive enough, although minor differences exist between different epizooties, and in different countries.

The features characteristic of the disease are the following :—Fever of a typhoid type, associated with a specific inflammation of the conjunctivæ and the mucous membranes of nose, mouth, and intestinal canal. This is accompanied by thirst, loss of appetite, difficulty in mastication, and arrest of the digestive processes. There is arching of the back ; the hair stands erect, there are tremors of the muscles, indicating the extent to which the nervous system is involved. The head hangs down ; the ears droop ; there is congestion of and discharge from the mucous membranes of eyes, nose and mouth. Diarrhœa, sometimes preceded by constipation, sets in, and the motions are mixed with blood, mucus, and pus ; the animal moans, coughs, grinds its teeth. It is first restless, and then more and more apathetic, till the increasing debility terminates in death.

The disease, as it appears in England, is usually characterised by a granular whitish eruption beginning on the gums, and extending to the lips and mouth generally, and also to the vagina. This eruption has not been often noticed in India ; and, although looked for, has not been seen in the present epizootie.

Pathology of the Rinderpest.

The pathological lesions of Rinderpest may be summarily stated to be,—intense congestion, aphthous deposit, extravasation, excoriation or ulceration of the digestive track from the mouth downwards, with the exception of the œsophagus, rumen and reticulum, which are usually healthy. The mucous membranes of the eyes and nose are also congested, and congestion of the membranes of the brain is frequently observed. There is an increase of germinal matter in the blood.

Such is the Rinderpest as it is known in Europe and

* Report on India Cattle Plagues. p.p. 892 893.

The present epizootic contagious.

Asia. Is this the disease which has been raging in Mauritius during the past 8 or 9 months? To this question the Veterinary Surgeons unanimously reply in the affirmative, and with that opinion I entirely agree. The contagiousness of the present epizootic has never been questioned. The records of its progress from one estate to another, and its spread on each individual estate, afford evidence only too clear and abundant of this fact. It has shewn itself here to be an eminently contagious disease, like the Rinderpest in Europe. The appearance of the plague in any locality was not only a menace, but an almost certain warning, of its speedy out-break on the neighbouring estates. The manner in which it was conveyed from place to place frequently eluded observation and could not be positively determined, but the fact that it *was* propagated either by contagion or infection, or in both ways, is beyond doubt.

Way in which the disease was introduced into Grand Port.

How the disease was introduced into Grand Port is well known. Cattle were removed from an infected locality to Mare d'Albert estate. What happened? In 12 or 15 days the disease had broken out on the neighbouring estates of Rose Belle and Joli Bois. The exact manner and time of the transport of the poison to the cattle on these two estates have not been, and probably never will be, ascertained; but the fact remains that the introduction of the disease at one spot in the district was speedily followed by its extension to the contiguous properties, and then by its rapid diffusion throughout the district. I do not recur to these facts in the way either of imputing or implying blame to any one, but simply for the purpose of illustrating the contagiousness of the disease even in instances in which the exact mode in which it was diffused evaded observation.

Grass as a possible means by which the contagion may be carried.

It may be noticed, however, in this connection, that when Mr. Hall, the Sanitary Guardian, happened to be on a visit to Mare d'Albert, on the 4th June, he found an Indian from Joli Bois carrying off some grass from the spot on which the diseased animals had been kept. This may not have been the actual source of infection at Joli Bois, but it was quite sufficient to account for its spread to that estate. Mr. Hall adds that he was informed that this was not the only occasion on which this had occurred. Mr. Hall further learned that Indians from other estates came out of curiosity to see the "new disease"; and there is every reason to suppose that many of them by so doing secured for themselves the opportunity of studying it more carefully in their own camps and on their Masters' estates.

Transmission by human beings.

By currents of air.

Several of the Planters give it as their opinion that the disease was carried two or three miles by means of currents of air. I am inclined, however, to think that in most cases when such distances intervened, it had been spread by surreptitious intercourse between the estates.

When the disease broke out on an estate, the Indians, who generally keep a number of cows in the camp, transferred them by night to other, and of course to healthy, localities; and in this way contributed materially to the spread of the evil.

By Martins and Cape Flies.

Many of the proprietors suspect the martins and cape flies of having been active agents in spreading infection. The possibility of this mode of dissemination must be admitted, but the proof in individual instances, is, from the nature of the case, almost impossible*. It is certain, however, that the martins had a bad reputation in the former epizootic.

Chief modes of propagation.

The modes in which a poison, subtle as that of Rinderpest, may be transferred from place to place are innumerable. It will suffice to mention the more important of them :—

(a) By the removal of diseased cattle from one district to another.

(b) By human intercourse—often no doubt by the agents of the Sanitary authorities, who from their duties became *moving centres of infection*.

(c) By diseased cattle passing over, or working upon, roads running through the estates to which they belonged. This was no uncommon infraction of the sanitary rules, as I can testify from personal observation.

(d) By healthy cattle drinking from streams canals, or ponds polluted by diseased animals.

(e) By the removal of grass or litterie impregnated with the poison.

(f) By currents of air, where the distance between the herds was inconsiderable.

(g) I have reason to believe that in not a few instances malice also played a part in the propagation of the disease.

Fatality of the reigning epizootic.

The *fatality* of the reigning epizootic marks it as Rinderpest. In Europe and in India from 2 to 27 per cent of the animals that are attacked recover. Here the proportion has varied very much in different districts, and still more in individual herds. The general mortality, reckoning by districts, has been about 80—85 per cent.‡

* Les chiens des gardiens de troupeaux emportant des lambeaux des cadavres, ou revenant empreints du sang des pestiférés, ont souvent transmis le typhus. J'ai constaté que d'autres animaux tels que les chats, les pores, la volaille et les martins ont beaucoup contribué à propager la maladie.

Ollivier Report p 9.

‡ Up to the 29th of December 1879—26,977 Oxen; 23 Pigs and 423 Deer are known to have perished from the epizootic. (See Statement).

Symptomatology of
the epizootic.

We will consider the *symptomatology* of the disease as it appears in Mauritius under a separate heading. By referring to this, it will be seen how entirely similar the disease here is to the Rinderpest in India, and how essentially alike both are to the Rinderpest of Europe. The peculiar mouth eruption noticed in Europe is not characteristic of the disease either in India or Mauritius. In almost all other particulars, they are identical. The period of initial fever—before any of the general symptoms appear, has not been observed here, probably because it has not been looked for. In a word—the general symptoms, temperature range, and *post mortem* appearances, justify the conclusion that the epizootic now ravaging the Colony is the same as the Rinderpest of Europe, modified to some extent by the influence of climate and other circumstances, and presenting the same characters as it does in India.

— A. L.

(Annexure D.)

ORIGIN OF THE CATTLE PLAGUE.

The Rinderpest does not arise spontaneously.

The Rinderpest has never been known to arise spontaneously. It is analogous to many other diseases, such as small pox, in this respect, that, however they may have originally been developed, they are never known to originate *de novo* at the present day from any combination of insanitary conditions. If, then, the epizootie that we have been witnessing during the past months be the genuine Rinderpest,—and of this there can be no doubt,—all the probabilities are against the idea of its spontaneous origin.

Supposed origin of the disease in 1844.

The outbreak of 1844-48 was surmised at the time to have been caused either by the cattle from Madagascar being subjected to a long and trying voyage, during which they were supplied with insufficient food, and then upon landing being put upon rich pasture; or to the Bombay fever of the day (which chiefly affected Indian labourers on the estates) becoming transferred to the cattle. These were simply theories and do not require consideration.

Its contemporaneous existence in India at the time, the probable explanation of its outbreak in Mauritius.

It is more to the point to observe that in 1844 the disease existed in India before it appeared in Mauritius; and that then, as now, it broke out in the neighbourhood of Port Louis, where an imported disease would naturally be expected to crop up.

Opinions of the Veterinary surgeons upon the origin of the present epizootie.

Mr. Bradshaw is the only Veterinary surgeon who inclines to the view that the present epizootie has arisen spontaneously in the Colony; but the facts that have been ascertained during the course of this inquiry point, we think, conclusively to its having been introduced.

First appearance of the disease.

On the 7th of May, Mr. Gautray reported to the President of the Board of Health, that he had examined the herd of Madame Jamet at Rochebois on the 3rd of the same month, and found it suffering from a disease that he suspected to be contagious, and recommended precautionary measures. It does not appear why four days were allowed to elapse before the report was forwarded to the proper quarter. This is the first official notice that we have of the existence of the plague.

Statement of Madame Jamet.

It appears by Madame Jamet's statement that her herd consisted of 8 bullocks, and 22 milch cows and heifers, all reared by herself upon the spot. She noticed her cattle to be sick about the beginning of May. She had no doubt whatever that it was communicated to her herd by Mr. Pierre's cattle, which grazed on the same grounds.

Statement of Mr. Pierre.

Mr. Pierre stated that he noticed the disease in his herd about the beginning of May, that four (4) had died by

the 2nd or 3rd of that month, and that the remainder (36 in number) were sent to be slaughtered. We may remark, here, in passing, a fact to which we will again recur, that the records of the Abattoir do not show that Mr. Pierre's cattle were slaughtered at least in any thing like the numbers that this statement would imply. Mr. Pierre affirms that Madame Jamet's herd was affected before his; and that his cattle contracted the disease from hers'.

Conflicting nature of evidence.

We are thus met at the threshold of our inquiry by a direct conflict of statements which compels us to resort to indirect evidence to settle, if possible, the date at which the disease broke out at Rochebois. We may remark that the general opinion is, that the disease had existed at Rochebois for some time before it was declared. Indeed, the same day as that on which Mr. Gautray's report reached the President of the Board of Health, the *Sentinelle* newspaper drew attention to its prevalence, asserting that it had at that time been raging for 15 days. It is very evident that if a number of cattle belonging both to Mr. Pierre and Madame Jamet had died by the 2nd or 3rd of May, the disease must have been developed at least some days earlier—that is about the end of April or the beginning of May; and allowing 5 to 10 days for the period of incubation, we may be certain that those animals which presented the signs of the fully marked disease in the beginning of May must have been infected sometime between the 21st and 28th of April. This much is certain, and we may assert it without the possibility of mistake, that the disease must have been in Rochebois during the last weeks of April. But the question still remains,—did it exist during the last week or fortnight of the month of April in its fully developed form? A well known, trust-worthy, and highly intelligent gentleman, Mr. Vigoureux de K Morvant, in a letter to the Secretary of this Commission, speaks of it as a matter of common notoriety that the disease affected Mr Pierre's cattle before those of Madame Jamet; that Mr. Pierre had already lost a considerable number towards the end of April, and that those that survived were slaughtered or otherwise disposed of.

Consideration of the evidence.

The returns of the Abattoir do not show that Mr. Pierre sent any considerable number of cattle to the Slaughterhouse in the end of April, as is implied in the letter referred to; neither do they indicate that he sent 36, or any such number, to the Abattoir in May, as he himself says he did. If any large number of cattle were sent by him to be slaughtered either in April or in May, they must have been sent under another name, or they must have been sent to some other Abattoir. The returns from the Abattoir cast no light on the transactions of Mr. Pierre during this period.

Disease must have been in Rochebois about the 21st of April.

But apart from all this conflicting evidence, we have proof that the disease was not only in Rochebois, but actually in the herds of Mr. Pierre and Madame Jamet some,

time between the 21st and 28th of April. Whence the infection? The theory that it arose spontaneously in either of these two herds is simply absurd. Madame Jamet's cattle were in good condition and carefully attended to. She had never lost any animals by disease during the past twenty years. Is it to be supposed then, even if we knew less than we do of the natural history of this disease, that such a fatal and contagious malady should all at once, and without any apparent cause, break out among her cattle? If on the contrary her herd was infected, from what source was the infection derived?

Mr. Pierre is a cattle dealer, purchasing largely from the various importations from Madagascar. He also frequently receives sheep coming from Aden by the Mail steamers. In this way he was clearly open to risks of infection to which Madame Jamet was not exposed.

Aden the only country trading with Mauritius where the disease existed, when it broke out in Mauritius.

The only country trading with Mauritius in which the disease is known to have prevailed at that time was Aden. It existed there in March. The mail steamer "Dupleix" brought cattle, hides and sheep to Port Louis on April 4th, and by any of these the infection might have been introduced. The cattle, five in all, seem to have been landed by Mr. Bremon at Pointe aux Sables. Some if not all of these animals were exchanged—that is, they were kept by Mr. Bremon, and Mauritius cattle were given in their place, and no disease is known to have followed their track.

Hides from Aden conveyed to Rochebois.

The hides were landed by a permit from the Customs, and placed under the wharf; and two or three days after they were taken by Mr. Bremon, to whom they were consigned, put into a cart, and taken to Rochebois, and afterwards—date unknown—shipped to England.

Some sheep from Aden taken out to Mr. Pierre's estate at Rochebois.

A part of the sheep by this mail, Mr. Pierre believes, were bought by him. What became of the rest is not exactly known. They were probably put on board again when the steamer left.

Appearance of disease in Rochebois followed shortly after the introduction of animals and hides from a diseased Port.

We have thus two possible sources from which the infection may have been introduced into Rochebois viz :—the hides and the sheep. As the sheep were not only taken to Rochebois, but to one of the properties on which the disease appeared, and shortly before the outbreak, we must accept it as highly probable that the disease was conveyed to Mr. Pierre's herd at Rochebois by these sheep from the "Dupleix," and that Madame Jamet's herd was either directly or indirectly infected from the same source.

Objections to the theory that the disease was brought from Aden.

The fact that the cattle landed at Pointe aux Sables did not communicate the infection to the cattle in that neighbourhood, although interesting, is not singular, and does not militate in the slightest degree against the opinion that it was conveyed to Rochebois by the sheep or hides

coming by the same mail. The Rinderpest has probably been as frequently carried to distant places by sheep and hides as by cattle.

Equally futile is the objection that if the sheep taken to Rochebois were the agents for carrying the infection there, then, the other sheep, which were probably kept at Pointe aux Sables, must have spread it in that district. The history of the introduction of the last epizootie into England sufficiently answers this objection. Sheep do not readily become infected, but it is well known that they can carry and diffuse the poison. If sheep were very susceptible to the Rinderpest, the whole 15 having been exposed to the disease would have contracted it, and in that case would have taken it with them and spread it wherever they went; but as they simply *carry* the poison, those sheep only that had been in contact with diseased cattle at Aden would be expected to carry the infection.

That the disease broke out at Rochebois in the herds of Madame Jamet and Mr. Pierre is established. That the Rinderpest existed at Aden or in its neighbourhood in March last is equally clear. That animals from the "Dupleix" that had just arrived from that infected port were directly conveyed to the property on which there is reason to believe the epizootie broke out is also proved. These facts, we think, afford a reasonable explanation of the appearance of the epizootie when and where it did.

Possible second introduction in May.

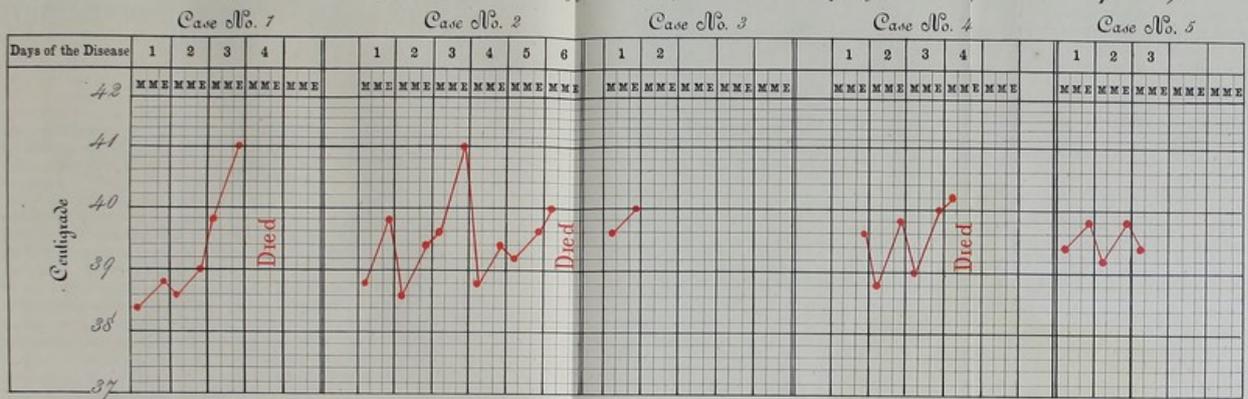
The "Godavéry" in May brought four bullocks, which were taken to Mr. Magnac's property at Petite Rivière. It is not at all certain that the disease was not introduced by them anew in May. The bullocks were landed on the 4th or 5th, and the disease broke out on Mr. Magnac's property on the 15th or 16th of May.

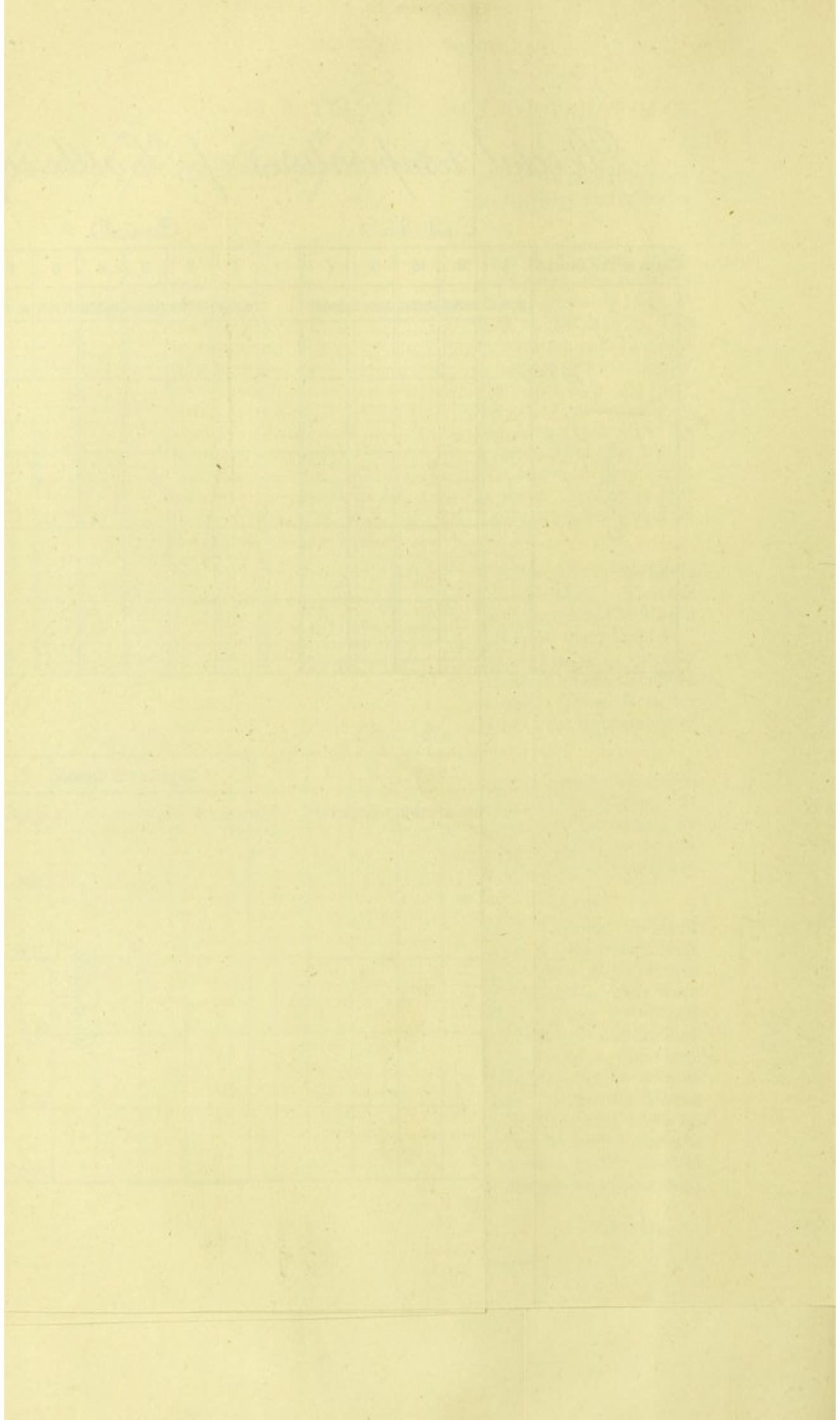
The disease could not have been introduced from Madagascar.

Mr. Pierre had cattle from the "Touareg" on April 28th. One of them died before reaching Rochebois with symptoms of weakness and diarrhœa. This circumstance naturally gave rise to suspicions that the disease may have been introduced by that cargo. When it was ascertained that the other cattle belonging to this shipment remained healthy; when it was taken into consideration that those cattle could only have reached Rochebois on the 28th of April, and consequently could not have caused the disease in Madame Jamet's herd by the 1st of May; and when we were assured by the Commandant at Nossi-Bé that the disease was unknown there, or on the adjacent coast of Madagascar, the suspicion that the disease was introduced by the "Touareg" was dismissed.

A. D.

Rectal temperatures of Cattle suffering from the Epizootic (Rinderpest)





Annexure E.

PERIOD OF INCUBATION

AND

SYMPTOMATOLOGY OF THE CATTLE PLAGUE

OF 1879

—

Period of Incubation.

Definition of the term
—period of incubation.

Although the period of incubation presents no symptoms, we shall here consider the question of its duration with reference to quarantine and other precautionary measures. The period that elapses after the poison has been received into the system, and before any symptoms manifest themselves, is called the period of incubation or latency. The importance of ascertaining the length of time that the disease can remain latent may be illustrated by an example. Let us suppose that a vessel has taken in cattle at Aden and has made the voyage to Mauritius in 10 days without any disease appearing among the cattle—would it be safe to land them? In other words, is it possible that the Rinderpest contracted before leaving Aden could remain latent for ten days, and the cattle appear healthy on their arrival in Mauritius, and yet that the disease break out after the cattle have been landed?

To answer this question, we must refer to the observation and experiments bearing upon the point that have been recorded by Scientists in other countries, as well as to the facts observed here during this epizootic.

Duration of this
period as observed in
England.

In England, the period of latency has been found to extend from 36 to 48 hours, when the disease is inoculated, & from 3 to 7 days when the animal is exposed to infection.

Observations in India.

Experiments carefully conducted in India, and detailed with the utmost precision in the "Report on Cattle Plagues 1871" shew the period of latency to be 2 to 3 days when inoculated, and from 5 to 10 days when acquired by infection. It would thus appear that the period of incubation is more protracted in India than in England, and that it varies considerably within certain limits even in the same country. Of one thing we may rest assured, viz: that the observations upon which the more extended period is given for India are thoroughly trustworthy. But it is perfectly possible that in some cases the period may be protracted even beyond 10 days.

The manner in which
the disease was brought
to England in 1865.

The facts connected with the out-break of the disease in England in 1865 are so instructive that they deserve to be narrated here in order to shew how careful we should be against fixing too narrow a limit to this period.

The disease was introduced into England in 1865 by the Steamer "Tonning" which arrived at Hull on the 29th May, from Revel, with a cargo of 331 head of cattle. Some of these cattle came from the interior of Russia, which at that time, or shortly before, had been infected. The duration of the voyage from Revel to Hull is not given, but it could scarcely have been less than 5 days. The cattle were not carefully inspected before landing, but no signs of disease were observed. A portion of the cargo was sent to Leeds, Manchester & Derby, but no disease was known to have occurred amongst these, and none followed their track. A lot of 127 were sent to London and these carried the infection to the Metropolis, where it was first recognized on the 12th of June. Are we to suppose that some of the animals brought the disease in a latent form from the interior of Russia, and only manifested it 15 days after landing in England? Or are we to suppose that one or more of the cattle had contracted the infection shortly before being embarked at Revel, and brought it with them, exhibiting no outward symptoms until the 12th of June? Or are we to conclude that the disease had manifested itself before it was recognized, a theory by no means improbable? Or, finally are we to suppose that the *contagium* was brought—transported we may say—by some of the cattle from the interior of Russia which may have been proof against the action of the poison from having previously had the disease, and that it was not brought *latent*, but simply *carried*, and that it took effect on some healthy cattle exposed to it a week or so before it broke out on the 12th of June?

If the disease remained latent during that voyage and up to the 12th of June, it is clear that the period of incubation must in that instance have been very protracted, and much beyond the limits usually assumed to it. One lesson is clearly taught by the case in question, vizt: that there will always be danger in permitting cattle coming from an infected locality to be landed however long the voyage may have been.

The observations for fixing the limits of the period of incubation in Mauritius are neither so numerous nor so precise as could have been desired; still they are not without value.

Observations bearing upon the period of incubation.

In many instances the plague simultaneously affected the whole of the cattle on an estate. In other instances—and these are rather numerous—a single animal became affected, and then after a certain number of days the disease extended to the others. In the first class of cases we may assume that the whole herd, in some way or other, became exposed to the infection at the same time; in the other class of cases that one animal alone had imbibed the poison, and in turn infected the others. The interval between the commencement of the disease in the first animal, and its exten-

sion to the others, marks pretty nearly the period of incubation.

Mr. Le Conte, Ville Valio, observed one bullock to be affected on the 3rd of June. On the 9th of June, from the morning to the evening, 26 cattle became successively affected and next morning 19 others. Here the period of incubation was clearly about a week.

Mr. Fouquereaux says that "the disease first appeared in a single animal, and 5 or 6 days afterwards a number became affected."

Mr. Le Merle, Gros Bois, says "the disease began with a single animal, and in 6 or 7 days the others took ill.

Mr. Dalais states that "one alone at first suddenly became ill, and & 10 days afterwards 54 took the disease."

Other instances similar to these could be adduced. We know that Mr. Pelte removed his cattle from Petite Rivière on the 16th of May, where they had been in contact with Mr. Magnac's herd, which had that very day been declared diseased, and on the 26th of May, that is, ten days later, the disease was reported at Mare d'Albert. That gives, speaking roughly, a period of 10 days of latency. I say: "speaking roughly" because, on the one hand, these cattle were probably infected some days before they left Petite Rivière, and, on the other, it is likely that they had exhibited symptoms of the disease for some days before the fact was reported to the Board.

A definite fact bearing upon the question is given by Mr. Gautier who states that the cattle on the Yemen and Barachois Estates took the disease *eight* days after a diseased animal had traversed these properties.

The following instances will shew, not the period of incubation, but the length of time that elapsed between the first out-break of the plague in a locality and its appearance on the neighbouring Estates.

Mare d'Albert. — May 26th.	{ Rose Belle..... June 11th. } { Joli Bois " 12th. } { La Flora " 13th. }	16 to 18 days.
La Bergerie. — May 20th ..	{ Mrs. Ameerum.. May 28th. } { Mr. Rogers " 29th. }	8 to 9 days.
Reunion. — June 17th	{ Henrietta } June 27th. — 10 days. { La Marie }	
	{ Bassin } July 1st. — 13 to 14 days. { La Ferme }	

Mr. Bradshaw's opinion that the period of incubation is more protracted than in Europe.

Mr. Bradshaw in his report states that he is fully convinced that in this Colony the disease "remains latent in the system for a much longer period than 8 days which European writers allow for its incubation."

Healthy cattle may carry infection.

The longest period of latency that has been actually observed during the epizootic does not exceed ten days, but I think that in some instances it may be protracted to 12 days or even longer, and in my opinion a fortnight should be allowed for observation in cases where suspicions of this disease exist in a cargo or herd. It cannot, however, be too strongly urged that no period of quarantine will insure security if animals from an infected locality are introduced and allowed to mix with the cattle of the Colony; for such animals may act as the agents for transporting and transmitting the poison, although they themselves have acquired immunity by a previous attack. When cattle from an infected country or locality are landed, they should be at once slaughtered under the supervision of the Sanitary Authorities.

SYMPTOMS.

Symptoms: First stage not observed in Mauritius.

The symptoms of the *first stage*, or that of initial fever, have not been observed in Mauritius. There is no reason to suppose it absent, it has simply not been looked for. During this stage no symptoms are present, except perhaps a slight dryness of the nose. The animal seems to be in perfect health, eats and drinks as usual, and is not dull. The thermometer, however, indicates a rise in the temperature of the animal. It can readily be understood that a period which can only be certainly detected by the use of the thermometer should escape observation by the owners of cattle who never made use of the instrument.

The peculiar eruption in the mouth and on other parts, which will be found described in the account given of the symptoms of the Rinderpest as observed in Europe, has not been noticed during this epizootic. As already stated, this eruption is seldom, if ever, seen in the Indian Rinderpest.

The stages actually observed here are two, which we may designate, 1st the stage of *Congestion*, and 2nd the stage of *Inflammation*.

The Stage of Congestion.

Stage of congestion.

Some of the animals die in the first stage of the disease, within 24 or 36 hours, and sometimes even within 12 hours from the commencement of the malady. The animal which may have appeared well enough the previous day, exhibits symptoms of suffering; there is complete loss of appetite, thirst, dulness, stupor, tremors, hurried respiration, and, in some instances, excitement—the animal being furious and running at any one within reach. There is congestion of the mucous membranes of the eyes, nose and mouth, and the temperature will be found to be 39.6° or 39.8° , and within 24 hours it may rise to 40° , or even higher. The animal rapidly sinks from fever and cerebral congestion. In this form the bowels may be either constipated or relaxed.

In the milder cases, the first signs observed are those that indicate nervous depression. The animal is dull (*triste*) and the appetite fails. Thirst is a frequent symptom. The head hangs down, the ears droop, the back is arched, the coat is staring, and the movements are sluggish; in the case of cows the secretion of milk will be suppressed or very much diminished,—in all there will be some disorder of the bowels,—either constipation or more commonly, diarrhœa. The conjunctiva and the mucous membranes of nose and mouth are congested. Occasionally there may be observed aphthous patches within the mouth ending in superficial erosions or ulcers. The eyes at first water, then the discharge becomes mucous. The discharge of mucus from the nose is generally observed as an early symptom. When the congestion of the mouth is considerable, salivation may occur. The temperature during this stage, which only lasts for a day or two, rises to 38.4 or 39, falling a little in the morning and rising at night.

The Stage of Inflammation.

Stage of inflammation.

There is no abrupt line of demarcation between these two stages—the congestion passes into inflammation, and the mucous discharge from eyes and nose gradually becomes muco-purulent. The diarrhœa, which may have already commenced during the first stage, now becomes severe—the motions frequent, watery, painful, and mixed with blood, mucus and pus. The general condition of the animal visibly & often rapidly become worse. At first it is restless, lying down and getting up, and changing its position; but as the debility increases it lies with its head prone on a line with its body, or thrown back, and becomes at first unwilling and then unable to move; and finally the animal is unable even to brush off or drive away the flies that torment it. The respiration hurried in the first stage, becomes more so as the disease advances, and is accompanied with cough and moaning. Tremors, spasmodic twitchings of neck and shoulders, and grinding of the teeth occur. The animal refuses food, partly on account of the general disorder, and partly also from the painful condition of the mouth. The temperature rises sometimes to 41° in the rectum, while the extremities get colder. Prostration increases, and death usually takes place in from 3 to 8 days.

Signs of Recovery.

When, instead of the disease running on to a fatal termination, recovery takes place, the unfavourable symptoms abate—the diarrhœa especially becomes less urgent, the appetite improves, and a gradual and slow convalescence is established.

Mr. De Rosnay of Belle Vue, mentions having seen a vesicular eruption in animals that are recovering from the plague. Perhaps this may not be uncommon although it has been over looked. Certainly a furfuraceous condition of the skin is quite common in animals that recover although it is also seen in those that die of the disease.

SYMPTOMATOLOGY OF THE RINDERPEST AS OBSERVED
IN ENGLAND.

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(1).—*Period of latency or incubation.*

- (a) When inoculated, 36 to 48 hours.
(b) When exposed to infection, 3 to 6 days.

(2).—*Period of initial fever.*

Lasting one to three
days.

Animal seems well, appetite normal, pulse, respiration, and secretion of milk all unaffected; but there is a rise of the temperature of from 2 to 4 degrees Fahrenheit. This period lasts 1 to 3 days. The animal during the latter part of the period may seem a little dull but is otherwise well.

(3).—*Period of eruption.*

Lasting one or two
days.

After the animal has exhibited this rise of temperature for about two days, the mucous membrane of mouth becomes slightly reddened, and this is followed by a granular yellowish-white eruption on the gums around the incisor teeth and afterwards on the lips. In about 2 days this falls off, leaving the abraded mucous membrane red with patches of erosion.

A somewhat similar eruption presents itself in the vagina.

The skin also becomes furfuraceous, with little granules. This is especially seen on the thinner portions, between the thighs and on the udder.

This period may last one day (occasionally two) before the symptoms of the next stage manifest themselves.

(4).—*Stage of mucous discharge.*

This commences two to three days after the appearance of fever.

The animal is dull, hangs its head, droops its ears, and arches its back. A slimy discharge issues from nose and eyes: appetite fails, and in milch cows the secretion of milk is arrested. The breathing is oppressed, expiration prolonged and often accompanied by a grunt; the bowels relaxed and frequently mixed with blood.

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SYMPTOMATOLOGY OF THE RINDERPEST AS SEEN
IN INDIA.

(1).—*Period of latency or incubation.*

- (a) When inoculated 2 to 3 days.
(b) When exposed to infection 5 to 10 days.

(2).—*Period of initial fever.*

A temporary rise in temperature, with dryness of the nose. Temperature falling to normal, or even slightly under. The animal otherwise well. This period lasts for two or three days.

(3).—*Period of Congestion.*

On the third or fourth day after the symptoms mentioned above appear, congestion and slight discharge from nose and mouth set in. This discharge becomes more marked and viscid, and the congestion deeper. This period may last about two days. The temperature during this period may be normal and bowels regular.

(4).—*Period of mucous discharge.*

After the congestion and discharge has appeared for about two days, the coat becomes staring, the back arched, the ears drooping. There is often diarrhoea with slime & blood, and in two or three days (in fatal cases) difficulty of respiration, prostration and death.

At the commencement of this period the temperature rises again, being highest in the evening.

As prostration sets in, the fever declines and the temperature may be below normal before the animal dies.

*Précis of Post-Mortem Appearances observed in two cases of
Cattle Plague.*

Post-Mortem appearances.

Both the bullocks examined were young. One of them was just dead, and the other had died about eight hours before the examination. In the latter, *rigor mortis* was well marked. The pathological appearances were identical in both.

Eyes, mouth & skin.

The animals were thin. There was mucous discharge about the eyes and mouth. No eruption was observed on the skin.

Respiratory organs.

The *larynx* was slightly congested; the *bronchial tubes* healthy; the *lungs* pale; the *pleuræ* healthy.

- Heart. The *Heart* was of normal size ; the left chambers nearly empty ; the right ventricle contained a moderate quantity of dark fluid blood.
- Intestinal track. *Rumen* was filled with undigested food, but normal. *Reticulum* healthy. *Omasum* filled with dry food adhering to its folds. Streaks of dry blood were observed on the food in contact with the membrane, which seemed congested and softened, and was easily detached. The epithelial layer was in some parts eroded. *Abomasum* congested, especially towards the pyloric extremity and a few small extravasations of blood were noticed here and there.
- The stomachs.
- Pylorus. *Pylorus* in both very much congested. In one there was an ulcer with raised red margins, with considerable thickening around it. It was oblong in shape ; its long diameter, in the line of the bowel, was about one third of an inch. The centre was black or dark brown and sloughy.
- Duodenum. *Duodenum* congested in the upper part, with dark points about twice the size of a pin's head, evidently due to limited follicular extravasations of blood.
- Small intestines. *Small Intestines*. Patches of congestion in various parts. The mucous membrane was covered in a great part of its extent with a yellowish-white viscid creamy fluid.
- Cæcum. The *Cæcum* and lower part of the *ileum* deeply congested, and in several places ulcerated. Ulcers were especially numerous in both cases on and near the ileo-cæcal valve.
- Large intestines. *Large Intestine*. In one of the bullocks a considerable extent of the colon was thickened, excessively red, and closely studded with small ulcers in all stages—some of them sloughing. In the other the same processes in a minor degree were observed.
- Mesenteric glands. The *Mesenteric Glands* were very much enlarged. The *peritoneum* covering the congested and ulcerated portions of the bowel slightly red.

MICROSCOPIC EXAMINATION.

Blood.—No vibrios nor bacteria. The red blood cells did not run into rouleaux, but formed a mosaic. Those that were lying free were mostly round, although many were not perfectly so. The white cells were very numerous, and large masses of germinal matter, consisting of multitudes of highly refracting and very minute granules, were observed along with a few isolated masses of pigment.

Mucus.—The mucus from the trachea contained no abnormal elements.

The white or creamy matter from the intestines was found to consist chiefly of pus cells and epithelium.

ANNEXURE (F).

INOCULATION.

The general experience both at home and in India has been unfavourable to the practice of inoculation in rinderpest. The following quotation from the General Report of the Indian Commissioners expresses the prevailing opinions of the highest authorities upon the subject :—

“ The question has arisen—can the practice of vaccination be imitated and a trivial non-fatal disease be induced, protecting against the serious and fatal one? To this we must reply emphatically in the negative. There can be no doubt of the inoculability of the disease. We have verified this fact by many cases, but the disease caused by this plan was quite as severe as that caused by natural infection. A large amount of experience has been gained on this point in Russia and elsewhere, and careful and repeated efforts have been made to mitigate the severity of the disease so communicated. A careful summary of all that has been done is given on the Report on the Cattle Plague in Great Britain, during the Years 1865, 1866 and 1867, issued by the Veterinary Department of the Privy Council; Appendix II, page 326. It is evident that this plan has little to recommend it beside that of voluntarily inducing the disease by exposing the animals to infection, except its greater certainty and the result being better in hand. No method of mitigating the disease has hitherto been found; and our experiments No. 44 page 895) would go to shew that transmission through sheep does not do so. The Russian Commissioners found that 15 transmissions through cattle did not mitigate the disease, and the result of these careful inquiries and experiments was, that they could not recommend the general introduction of inoculation, but would permit its practice by individuals under proper precautions and scientific supervision.” Report of Commissioners, pages 23 and 24.

Inoculation has been tried on a comparatively large scale during this epizootic. The results are given in the following returns.

It will be seen that the total mortality of cattle (including all districts), so far as has been ascertained, has been 81.71 per cent. This is the general result without reference to treatment. The mortality of inoculated cattle was 33.31 per cent i.e. 1 per cent higher than those not inoculated; and this includes the cattle inoculated while healthy and those inoculated after the disease had appeared. The mortality of cattle inoculated while under the influence of the disease was only 78.25 which is $3\frac{1}{2}$ per cent less than the general mortality, while that of those inoculated while healthy was no less than 91.13 per cent; in other words only 8.87 per cent were saved.

It must be noticed that while this report is being written the disease is still raging, and the returns on which the calculations are based are consequently incomplete. There is no reason, however, to suppose that any addition to the figures would materially alter the percentages here given.

It will be seen from the following tables that the mortality varies greatly in the different districts; and an examination of the returns of the Sanitary Inspectors will show, that it also varies in a remarkable way in the case of different herds in the same district.

In some of the very rare instances, in which no special kind of treatment was adopted, a large proportion of the animals recovered—in one case 50 per cent;—while in others almost the whole herds perished. The same striking differences in the result are observable when inoculation had been practised. It may be urged that the result of inoculation is dependent upon the skill of the operator, the mode of operating, the condition of the cattle, and especially on the circumstance as to whether the operation was resorted to before or after infection. But in judging of the value of inoculation, and in comparing it with other kinds of treatment, or no treatment, we must take it as it has actually been practised, in the circumstances of a prevailing epizootie, and by the men who were available. Inoculation can only be proposed or permitted during an epizootie, and the best operators cannot always be obtained at such a time; special precautions cannot be adopted, and the time for operating cannot always be selected. It is useless, then, to speculate as to what the results of the operation might have been if carefully performed by Veterinary Surgeons on healthy cattle.

It may be remarked also that it is doubtful whether inoculation was really effected in some of the herds on which it is reported to have been performed. In one instance the animals remained healthy for a month after the operation. In this case we must surely suppose that the inoculation failed, and that the animals then contracted the disease in the usual way. In another case no symptoms appeared for 10 or 12 days. This is also obviously a very doubtful case. In some instances, when a large mortality followed the operation. The symptoms suggest the question;—whether the animals died of inoculated Cattle Plague or from putrid infection?

Taking, however, the statistics as they stand, the conclusion to which an unprejudiced consideration of the subject leads us is, that inoculation as a rule does not render the disease milder or recoveries more frequent.

Results of Inoculation.

BLACK-RIVER.

No.	Estates.	No. of Cattle Inoculated.	By whom.	No. saved.	Remarks.
WHEN UNDER THE INFLUENCE OF THE DISEASE.					
1	Medine	100	Mr Kock ..	32	} 24.1 per cent saved.
2	Lamecque	185	Proprietor ..	56	
3	Eau Bonne	81	Do. ..	12	
4	Bon Asyle	98	Do. ..	20	
5	Magenta	300	Do. ..	72	
6	Mon Désir	250	Mr Kock ..	53	
		1014		245	
INOCULATED BEFORE INFECTION.					
1	Palmyre*	250	Mr D'hotman	7	* The disease appeared on the 2nd day after inoculation.
2	Rivière Dragon & Belle Vue*	63	Do. ..	0	* The whole herd died three days after inoculation with symptoms of septic infection.
3	Casela*	55	Do. ..	30	* The disease appeared twenty days after inoculation.
		368		37	10 per cent saved.
OPERATION SUPPOSED TO HAVE BEEN PERFORMED A MONTH BEFORE THE DISEASE APPEARED.					
1	Clarence	360	Mr Kock ..	158	* See the two letters of Mr Boucherville.

Results of Inoculation.

PLAINES WILHEMS.

No.	Estates.	No inoculated.	By whom.	No. saved.	Remarks.
WHEN UNDER THE INFLUENCE OF THE DISEASE.					
1	Chebel	88	Mr Kock ..	28	32 per cent saved.
INOCULATED WHILE HEALTHY.					
1	Reunion	30	Mr D'hotman	4	* The disease appeared five days after inoculation.
2	Henrietta	29	Mr Gentrac	8	
		59		12	20·3 per cent saved

GRAND PORT.

INOCULATED WHEN UNDER THE INFLUENCE OF THE DISEASE.					
1	Mon Désert	104	Unknown ..	5	
2	New Grove	44	Mr D'hotman	28	
3	Plaisance	116	Unknown ..	8	* These numbers are doubtful.
4	Savinia	133	Do. ..	12	13·3 per cent saved
		397		53	
BEFORE INFECTION.					
1	Beau Vallon (Roche-couste.)	420	Mr D'hotman	33	7·8 per cent saved

SAVANNE.

INOCULATED BEFORE INFECTION.					
1	Constance	420	Mr Gentrac ..		* All died.

RIVIÈRE DU REMPART.

INOCULATED BEFORE INFECTION.					
1	Mon Loisir	92	Mr Kock ..	4	4·3 per cent saved.

Total number of recoveries to Deaths.

Districts.	No. of Cattle diseased.	No. of Cattle saved.	Per centage.	Remarks.
Flacq (South Section).....	2744	558	20.3	} 18.29 per cent saved.
Plaines Wilhems	1590	330	20.7	
Black River	9433	1284	13.6	
Moka	1728	652	37.7	
Flacq (North Section).....	2744	490	17.8	
Rivière du Rempart	2091	737	35.3	
Pamplemousses (including those killed)	2062	334	16.2	
For the following districts the Statistics are not so complete, but they are correct so far as they go :				
Grand Port (Estates)	1838	153	8.3	
Do. (Indians)	902	124	13.7	
Savanne (Estates)	444	48	10.8	
Do. (Indians)	496	60	12.0	
	26072	4770		

FURTHER REMARKS ON INOCULATION AND THE INOCULATION STATISTICS.

When inoculation is practised on *healthy* animals, it is done in the hope that the disease so induced may be milder and less fatal. Our statistics prove conclusively that, when healthy cattle are inoculated, the mortality is very much greater than when the disease is contracted in the ordinary way.

2o. Inoculation is practised on *diseased* animals in the hope that it will modify the natural course of the malady and render it less fatal, and the statistics, especially of Black River, would seem at first sight to encourage that hope. But if it be borne in mind that the operation has in many instances been performed on infected herds, from which the most dangerous cases had been already eliminated, it will be clear that in judging of the utility of inoculation we must look below the figures. In the Grand Port district, the proportion of recoveries after inoculation was less than what occurred among the cattle belonging to the Indians who did not use inoculation at all.

3o. What does inoculation after infection really mean? It means the insertion of a small additional quantity of a virus with which the system of the animal is already saturated. Inoculation, as every one knows, produces no effect whatever upon an animal that has already suffered from the disease. Is it reasonable to believe that it will modify, in any way, the progress of the malady in an animal actually suffering from it?

4o. We are not to suppose that inoculation has always been effected when the operation has been performed. In many instances no doubt the plague was really communicated by the operation. On *Palmyre Estate* the inoculation (*as an operation*) seems to have been entirely successful, but the result as the proprietor quaintly remarks was "not such as to render him a partisan of the operation." In other instances the cattle died rapidly after the operation, not, apparently, from cattle plague but from septic infection and gangrene (*Rivière Dragon* and *Belle Vue Estates*). In other instances again the animals remained well for twenty days (*Caselà Estate*), or even for a whole month (*Clarence Estate*), and then seem to have contracted the disease in the ordinary way.

5o. The conclusion to which I come is this; that the inoculation of *healthy* animals is disastrous, that of *affected* animals is useless.

TREATMENT.

It would be useless to enumerate the various methods of treatment that have been tried, and the different medicines experimented with, during the progress of the epizootic. Those who care to take the trouble of reading the reports of the treatment adopted by the owners of cattle, and of comparing the results of the different plans with each other, and with the results where *no treatment* whatever was resorted to, will be satisfied that there is no specific for Rinderpest. None of the so called remedies, some of which have enjoyed an undeserved popularity from the fact that they have been scrupulously kept secret, have been of the slightest use. Rinderpest is not to be prevented, nor arrested, nor even sensibly modified by any medication whatever. The resort to pretended specifics has done harm in this way, that it has diverted the owners of cattle from the only rational treatment.

When large numbers of cattle are crowded together, the mortality is always great. When the disease appears in a large herd, the affected animals should be drafted off into well ventilated sheds adapted for a moderate number of animals. By this means the poison is less concentrated and intense than when the animals are crowded together; in which case, they are poisoned by their own emanations.

In this disease, the digestive system is the one most essentially affected. The animals are unable either to eat or to digest their ordinary food. The affection of the mouth prevents eating, and the disease of the digestive track renders digestion impossible. Feeding them with soft food is at once the most rational plan to adopt, as it is the plan that has been found most successful elsewhere. Rice gruel is much used in India, but soft mashes of any simple kind will answer as well. To allow the animal to eat coarse grass can only aggravate the gastric and intestinal inflammation. Food of this kind cannot be digested—therefore it cannot nourish, nor sustain the failing strength.

Diarrhœa is one of the most prominent symptoms, and when excessive it should be moderated, rather than arrested, by astringents. The animals, while being allowed plenty of fresh air, should be carefully protected from sun, rain, wind and cold.

These means, simple as they are, will be found more successful than any empirical treatment that can be adopted.

Annexure G.**Documents relating to the existence of
Cattle Plague in neighbouring Coun-
tries.**

Consulat de France
à
l'île Maurice.

Port Louis,
le 1er Novembre 1879

Monsieur,

Vous m'avez fait l'honneur, par votre lettre d'hier, de me prier, au nom de la Commission chargée de s'enquérir des causes auxquelles doit être attribuée l'épizootie qui frappe sur les animaux de race bovine de la colonie, de prêter mon concours à ses recherches, en réclamant des autorités de Nossibé ou des agents consulaires français résidant sur la côte occidentale ou septentrionale de Madagascar tous les renseignements qu'ils pourront me fournir sur l'état sanitaire des bœufs existant dans la région qu'ils habitent.

Je m'efforcerai, Monsieur, de satisfaire sur ce point aux désirs de la Commission. Mais pour que les renseignements qui me seront fournis aient un caractère d'exactitude suffisant, il me paraîtrait utile de pouvoir indiquer d'une façon précise dans ma demande, les symptômes les plus faciles à constater qui précèdent la mort des animaux atteints par le mal régnant, et je vous serai obligé de m'adresser le plus promptement possible une note dans laquelle ces symptômes seraient exposés et décrits dans des termes usuels.

Vous savez, Monsieur, que la France n'est représentée dans toute l'île de Madagascar qu'à Tananarive et à Tamatave. J'espère cependant que, par les relations qu'il entretient avec les différentes parties de l'île, mon collègue à Tananarive pourra se procurer et me transmettre sur l'état des bestiaux en pâturage sur la côte occidentale, les renseignements que la Commission cherche à obtenir, et j'ai l'intention de lui écrire à ce sujet. J'adresserai la même demande à M. le Commandant de Nossibé.

J'ai l'honneur d'être,

Monsieur,

Votre très obéissant serviteur,

F. LAPLACE.

Monsieur ANDREW DAVIDSON,

Secrétaire de la Commission d'Enquête
sur la peste bovine.

Consulat de France
à
l'île Maurice.

Port Louis,
1er Décembre 1879.

Monsieur,

J'ai l'honneur de vous transmettre sous ce pli, pour l'information de la Commission, la copie d'une lettre que vient de m'adresser M. le Commandant de l'île de Nossi-bé, en réponse à ma demande de renseignements sur l'état sanitaire des bœufs existant sur la côte occidentale de Madagascar.

Je vous communiquerai, aussitôt qu'elles me parviendront, les informations complémentaires que me promet M. Seignach.

J'ai l'honneur d'être,
Monsieur,
Votre très obéissant serviteur,

F. LAPLACE.

Monsieur ANDREW DAVIDSON,
Port Louis.

Gouvernement
de
Nossi-Bé.

Nossi-Bé,
le 17 Novembre 1879.

Service de l'Ordonnateur.

COPIE.

Monsieur le Consul Général,

Pour satisfaire à la demande contenue dans votre lettre du 6 Novembre courant, j'aurai l'honneur avant longtemps de vous fournir des renseignements circonstanciés sur l'état sanitaire des bestiaux dont l'élevage se fait sur les points de Madagascar qui avoisinent Nossi-Bé.

En attendant, je m'empresse de vous faire savoir que, depuis deux ans que je commande la colonie, aucun habitant n'a eu à déplorer d'accidents dans les troupeaux de bœufs par suite d'épizootie. Les bœufs qui arrivent journellement à Nossi-é proviennent des localités où s'approvisionne généralement le " Touareg," et au dire des mieux informés la peste bovine qui fait de si grands ravages à Maurice n'a jamais sévi sur la portion du territoire de Madagascar d'où nous tirons nos animaux de labour et de boucherie.

Veuillez agréer, &a.

(Signé) SEIGNACH.

Monsieur le Consul Général de Maurice.

COPY.

No. A/2274.

Mauritius,
Colonial Secretary's Office,
27th October 1879.

Sir,

In answer to your letter No. 580, of the 21st August last requesting that information be obtained from the Government of Natal as to whether any contagious disease exists among animals in that colony.

I am directed by the Governor to transmit, for the information of the General Board of Health the accompanying copy of a letter which has been received from Natal on the subject.

I have &c.

(S.) L. E. SCHMIDT,

Ag. Asst. Colonial Secretary.

No. 4065.

5th September 1879.

1879

Sir,

In reply to your letter of the 23rd ultimo, requesting information as to the existence of contagious diseases amongst the cattle in the colony of Natal, I have the honor, by direction of the Colonial Secretary to forward you a copy of the report of the Veterinary Surgeon to whom your letter was referred.

I have, &c.

(S.) JAMES FORDER,

Acting Chief Clerk.

The Actg. Asst. Col. Secretary,
Mauritius.*Report of the Veterinary Surgeon.*

Colonial Secretary.

At the present time I believe there is no district in Natal free from lung-sickness (contagious Pleuro-Pneumonia) as it has been more than usually prevalent this year. This disease prevails throughout South Africa at all seasons as there are no adequate measures in force to prevent the spread of the contagion.

Red water has broken out in several places lately, but is not very severe. The poison of this disease appears to be thrown off in the excretions, by which means the veldt becomes contaminated and the disease is spread.

I do not think it is likely to be conveyed any distance on board ship.

Mange prevails to a great extent, but is easily cured by proper dressings.

The above are the only contagious diseases now existing amongst Natal cattle that I am aware of, and I have no reason to suspect any others. These diseases prevail in the neighbouring territories I believe.

(S.) P. WILTSHIRE,
Col. Vet. Surgeon.

5.9.79.

A true copy.

(S.) JAMES FORDER,
A.C.C.

Memo. No. C/613.

True copies transmitted to Dr Davidson, Secretary to the Cattle Plague Commission.

5th November 1879.

F. LOVELL,
President, General Board of Health.

Mauritius,
Colonial Secretary's Office,
8th January 1880.

Sir,

I am directed by His Excellency the Governor to transmit to you, for the information of the Cattle Plague Commission, the enclosed copy of a correspondence received from Natal regarding the alleged prevalence of the disease known as "Cattle Plague," "Rinderpest," or "Peste Bovine" amongst the cattle in that colony.

I have, &c.

H. N. D. BEYTS,
Acting Colonial Secretary.

Colonial Secretary, Natal, to Colonial Secretary, Mauritius.

Copy.

3rd November 1879.

Sir,

With reference to an inquiry made by the Chief Medical Officer, Mauritius, regarding the prevalence of the disease known as "Cattle Plague," "Rinderpest" or "Peste Bovine" amongst the cattle of Natal during the first four months of this year, I have the honor by direction of Lieutenant Governor Sir Henry Bulwer to transmit to you herewith a copy of a Report by the Colonial Veterinary Surgeon, for the information of the Medical Department of the Island.

I have, &c.

(S.) C. H. B. MITCHELL,

Colonial Secretary.

REPORT.

Colonial Secretary.

The disease known as "Cattle Plague," "Rinderpest" or "Peste Bovine" (French term) has never existed in Natal. Had it done so, it would necessarily have come under my notice and investigation during the five years I have held my present appointment.

The contagious diseases which have prevailed here during the present year are "Pleuro-Pneumonia," "Red-Water" and "Mange." The former is known in nearly all parts of the world: "Red-Water" is a local affection, essentially different from Cattle Plague and appears to be spread by the poison contained in the excretions (fæces, urine, &c.): "Mange" of course needs no description nor remarks.

The losses of Cattle in the Colony this year have been chiefly from P. Pneumonia and overdriving, together with the hardships of the campaign, and general bad management of the Officers and conductors in charge of the Government cattle.

The Chief Medical Officer of the Mauritius Government has received information which is untrue and I believe without foundation.

1.11.79.

(S.) S. WILTSHIRE,

Col. Veterinary Surgeon.

To

The Honorable
The Colonial Secretary,
Mauritius.

(Copy.)

*Memo from Political Resident, Aden, dated Aden
4th October 1879.*

“ About the 20th of March last, information was obtained that there was a disease prevailing among the horses as well as horned cattle in the interior of Arabia, and that several deaths were occurring. Measures to prevent its introduction into the Settlement were at once adopted.”

“ The French Consul who is also Messageries Maritimes Agent heard of this disease and made inquiries with a view to the provisioning of his ships, he as well as all local shipping Agents were informed that in spite of the precautions taken, disease had shown itself in Aden primarily among slaughter cattle, and stringent measures were then resorted to, prohibiting the importation in Aden of horses and horned cattles and steps taken to segregate the affected and to prevent the spread of the disease by notification dated 12th May 1879, and warning given on the matter of export.”

“ It is necessary to add that Aden is entirely dependent on (for) its supplies from the adjacent countries and produces nothing, hence the difficulties and extreme hardships engendered by a total prohibition (of the introduction of cattle) for lengthened periods. Hides have been looked upon as necessary to be included in the prohibition respecting cattle.

Extract from Report of Mr W. Lamb, Inspecting Veterinary Surgeon, Bombay.

“ I inspected all the sick cattle in Aden and made post mortem Examinations of two animals, that has succumbed to the disease “ the Murrain ” ; this enabled me to prove that it was not the Anthrax fever ” but that it is Rinderpest as it occurs in the comparatively mild form which it assumes in Asia.”

Cattle Disease.

No. 182.

General Department,
Bombay Castle, 20th January 1880.

Letter from the Political Resident, Aden, No. 371—

2186, dated 24th December
No. G.-41, dated 13th October 1879, from the Governor of Mauritius. 1879—Forwarding copies of
Resident's No. 1767, dated 24th October 1879, with accompaniment. correspondence as per margin,
No. G.-58, dated 4th December 1879, that has taken place between
from Governor of Mauritius. the Aden Residency and the
Governor of Mauritius, regarding cattle plague ; and sug-

gesting that Mr. Lamb's opinion be furnished for the Government of Mauritius.

Letter from the Inspecting Veterinary Surgeon, No. 66, dated—January 1880—Submitting, as called for, report of the symptoms, and *post-mortem* appearances in the cases of cattle plague observed by him at Aden in June last; and suggesting that if the Government of Mauritius has no copy of the report of the Cattle Commission of 1871, published by order of the Government of India, a copy may be sent, as it is impossible for him to enter fully into all the varied symptoms and morbid changes that occur in different cases and different localities.

RESOLUTION.—A copy of Mr. Lamb's report as also of the report of the Cattle Plague Commission referred to by him, to be forwarded to the Political Resident at Aden for communication to the Government of Mauritius.

JOHN NUGENT,

Acting Secretary to Government.

To

The Political Resident at Aden (with copies of Mr. Lamb's letter and the report referred to),

The Inspecting Veterinary Surgeon.

Cattle Disease.

No. 66 of 1880.

Inspecting Veterinary Surgeons's Office,
Poona—January 1880.

Sir,

In compliance with your No. 23 of the 5th instant, I have the honor to submit the following report of the symptoms of post-mortem appearances in the cases of Cattle Plague observed by me at Aden in June last.

I would premise that the symptoms vary considerably in different cases as do also the pathological changes and that there is no one symptom or post-mortem appearance that can be pointed to, as the peculiarity of Rinderpest: but those observed in the aggregate leave no doubt as to the nature of the disease that prevailed at Aden at that time.

If the Government of Mauritius has no copy of the report of the Cattle Plague Commission of 1871, published by order of the Government of India; I would suggest that a copy may be sent, as it is impossible for me to enter fully into all the varied symptoms and morbid changes that occur in different cases and different localities.

Symptoms.

The first symptom usually observed is dullness: the animal, lies down a good deal, sleeps with half closed eyes; feeds slowly and with indifference. Soon tears begin to flow and mucous collects in the corners of the eyes; there are shivering fits: the coat stares: skin hot, internal temperature raised (101° to 102° F); gum injected, with a purple line appearing above the incisor teeth: a little later the gums recede from the teeth, exposing their necks; there is excoriation; aphthæ form under the tongue, inside the cheeks; burst and leave shallow ulcers: tongue foul and coated, breath offensive: appetite and rumination usually cease altogether about this time; diarrhœa generally sets in, though sometimes there is on the contrary obstinate constipation; the discharges are offensive. Internal temperature rises to 105° or 106° ; respiration laboured, but seldom any cough; there is great prostration and death rapidly supervenes.

There is not always any eruption on the skin; but when there is, it is a favourable symptom. It usually appears between the thighs and fore-arms, on the lower surface of the abdomen; and eventually spreads all over the body. It resembles variola: but the pustules are small, discharge very little and leave scaly, scurfy, scabs. The skin generally, is scurfy, harsh and rough even when there is no actual eruption.

Post-mortem appearances.

Aphthous ulcers in the mouth, extending to the pharynx which is congested, livid, with ecchymosis in patches. Œsophagus and the two first stomachs usually free from disease: but the 3rd stomach (omasum) is often found congested, with aphthous deposits on the folds, and perforation when there is impaction. The abomasum or true stomach is however the principal seat of the disease, and is invariably found congested and livid in appearance externally, ulcerated internally, the coats greatly thickened, often œdematous; contents fluid, brown or dark coloured with shreds of mucous floating therein. The small intestines are nearly always found similarly affected and as severely as the abomasum; but the colon and rectum do not show such marked effects of the disease.

The respiratory organs are always more or less affected, occasionally in a marked degree, so much so as to make them appear almost the principal seat of the disease. Then we have congestion, ecchymosis and ulceration in the mucous membranes of larynx and trachea: lungs congested, even to engorgement: hepatization occasionally. But even in these cases the abomasum small and intestines will show most marked pathological changes, which are never absent in those parts.

I have, &c.

(S.) W. LAMB,

Inspecting Veterinary Surgeon.

True copy,

(S.) W. A. ACWORTH,

Actg. Under Secretary to Govt.

True copy,

Assistant Resident.

Annexure H.

Documents connected with the importation of cattle, sheep, &c., and their final distribution or disposal.

1. Letter from Customs with return.
 2. Paper shewing the arrivals of cattle from Aden and how they were disposed of.
 3. Papers relating to cattle from Madagascar.
-

No. 183.

Customs, 6th October 1879.

Sir,

I have the honor to transmit herewith a statement of the particulars which you have requested me to furnish you with, for the Cattle Plague Commission.

I have the honor, &c.,

J. FERRIS SEYMOUR,

Officer in Charge.

To

Dr. DAVIDSON,

Secretary to Cattle Plague Commission.

Statement of Cattle imported into this Colony from the 1st October 1878 to 30th September 1879, and of other particulars required by Cattle Plague Commission.

Date.	No. of Cattle imported.	Countries from which the Cattle came.	Vessels.	Length of Passage.	Number of deaths occurring during the voyage and in landing.	Copy of Report of Veterinary Surgeon.
1878						
2nd Oct. ..	351	Madagascar ..	Str. Touareg	5 days {	10 lost during the voyage. 9 drowned in landing.	I hereby certify that I have this day examined the animals arrived per (names vessels & master) and that have found them all in healthy condition. (S.) Gautray père, G.V.H. Officer.
7th do. ..	445	do. ..	Str. Alex. Smyers.	8 days {	11 lost during the voyage. 13 drowned in landing.	Similar to the above.
18th do. ..	370	do. ..	Str. Touareg	5 days	.....	do.
23rd do. ..	364	do. ..	Str. Alex. Smyers.	5 days {	42 lost during the voyage. 51 drowned in landing.	do.
28th do. ..	221	do. ..	Grimaldo	15 days	.....	do.
29th do. ..	239	do. ..	Barentin	19 days	3 lost during the voyage.	do.
5th Nov. ..	370	do. ..	Str. Touareg	5 days	.....	do.
22nd do. ..	371	do. ..	do.	6 days	.....	do.
26th do. ..	2	do. ..	do.	6 days	.....	do.
29th do. ..	221	do. ..	Grimaldo	11 days	1 lost during the voyage.	do.
10th Dec. ..	368	do. ..	Str. Touareg	5 days	.....	do.
23rd do. ..	221	do. ..	Merle Blanc	15 days	9 lost during the voyage.	do.
24th do. ..	193	do. ..	Holland	15 days	12 lost during the voyage.	do.
30th do. ..	370	do. ..	Str. Touareg	5 days	.....	do.
1879						
8th Jan. ..	198	do. ..	Grimaldo	12 days	1 lost during the voyage.	do.
22nd do. ..	3	do. ..	Countess	6 days	.....	do.
22nd do. ..	370	do. ..	Str. Touareg ....	.....	.....	do.
22nd do. ..	3	do. ..	do.	7 days	.....	do.
22nd Feb. ..	3	do. ..	do.	6 days	.....	do.
22nd do. ..	351	do. ..	do.	6 days {	12 lost during the voyage. 2 drowned in landing.	do.
11th March..	370	do. ..	do.	5 days	.....	do.
26th do. ..	367	do. ..	do.	3 days	2 lost during the voyage.	do.
8th April ..	115	do. ..	Java Packet	9 days	2 lost during the voyage.	do.
8th do. ..	137	do. ..	do.	9 days	.....	do.
16th May ..	193	do. ..	Holland	21 days	22 lost during the voyage.	do.
9th April ..	374	do. ..	Str. Touareg	7 days	.....	do.
28th do. ..	374	do. ..	do.	7 days	.....	do.
27th May ..	370	do. ..	do.	6 days	1 lost during the voyage.	(S.) A. Gautray.
27th June ..	98	do. ..	Merle Blanc	21 days	2 lost during the voyage.	(S.) Gautray père.
4th July ..	300	do. ..	Str. Touareg	7 days	.....	Similar to the above.
21st do. ..	305	do. ..	do.	7 days	.....	do.
7th Aug. ..	351	do. ..	do.	9 days	.....	do.
19th do. ..	146	do. ..	Holland	25 days	2 lost during the voyage.	do.
29th do. ..	365	do. ..	Str. Touareg	8 days	.....	do.
22nd Sept. ..	275	do. ..	do.	8 days	.....	do.
28th Nov. ..	3	Aden ..	Str. Godavery ..	15 days	.....	do.
13th June ..	2	Australia ..	Janet	23 days	.....	(S.) A. Gautray.
11th Jan. ..	183	Madagascar ..	Farmer	13 days	9 lost during the voyage.	(S.) Gautray père.
14th do. ..	4	Aden ..	Str. Godavery ..	15 days	.....	do.
1878						
19th Oct. ..	250	Rodrigues ..	Farmer	4 days	.....	do.
25th Nov. ..	294	do. ..	do.	4 days	.....	do.
Total ..	9910					

CATTLE FROM ADEN.

Distribution and final disposition of cattle and sheep imported from Aden during the year 1879 so far as has been hitherto made out.

Godavery, January 14th.

4 cattle landed. How disposed of uncertain.

Dupleix, February 6th 1879.

1 bullock exchanged by Mr Magnac.

1 cow do.

3 calves do.

Godavery, March 1879.

Not included in the Custom House Returns.

Dupleix, April 4th.

5 cattle landed, received by Mr Sibaly and kept at Pointe aux Sables.

15 sheep. These, or a part of these, were disposed of by private sale. Mr Pierre states that he believes that he bought some of them and took them out to Rochebois. Some of them are stated to have been sent to Vallée des Prêtres by Mr Sibaly.

Godavery, May 4th.

4 bullocks were landed and taken to Mr Magnac's estate at Petite Rivière, where they remained until the disease broke out, and they were then killed with the rest of the herd by orders of the General Board.

CATTLE FROM MADAGASCAR.

February 19th, "Touareg"—passage 6 days.

355 bullocks.

12 lost during the voyage.

2 drowned in landing.

Purchasers.	Where sent to and how disposed of.
Messrs. A. Marie	} Sent to Vallée des Prêtres.
— Zéphir	
— François	} Rochebois.
— Renaud	
— Brunet	} Batterie Dumas.
— Denise	
— Capiron	
— Docinthe	} Vallée des Prêtres.
— Sauzier	
— Nayna	Grand River.
	Rose Hill.
	(Taken up at once and pastured on Mr Goupils property.)
— Longprez	Curepipe.
— Bourguignon	Petite Rivière.

March 10th, "Touareg"—passage 5 days.

370 bullocks.

None lost either on the voyage or on landing.

Messrs. Meeajun	Mahebourg.
— Cowie	do.
— Nayna	Rose Hill (disposed of as before).
— Longprez	Curepipe.
— Dargo	Flacq.
— Renaud	Rochebois (killed for consumption)
— Denise	In good condition ; sent to Vallée des Prêtres and killed as required.
— Marie	do.
— Brunet	do.
— Docinthe	Batterie Dumat.

March 26th, "Touareg"—3 days passage (Tamatave).

367 bullocks.

2 lost during the voyage.

Honorable Antelme, Plaines Wilhems.

Messrs. Constanive, Savanne.

- Hart & Belzim, Plaines Wilhems.
- F. Pilot, Pamplémousses.
- Victor & Arékion, Vacoa.
- Nayna, Rose Hill (disposed of as before).
- Brémon (sent to Pointe aux Sables).
- Meeajan, Mahebourg.
- Denise (in good condition, sent to Vallée des Prêtres for consumption).
- Brunet do. do.
- J. P. François do. do.
- Renaud (sent to Rochebois and killed for consumption).

April 9th, "Touareg" from Mamooka—length of passage 7 days.

374 bullocks.

None lost during voyage.

Messrs. A. Sauzier, Grand River.

- Nayna, Rose Hill (disposed of as before).
- Longprez, Curepipe.
- Renaud (sent to Rochebois and killed for consumption).
- Denise (in good condition, sent to Vallée des Prêtres for consumption).
- Brunel do. do.
- Marie do. do.
- J. P. François do. do.
- Zéphir do. do.
- Boullineau
- Magnac, Petite Rivière (3 bullocks).

CATTLE FROM MADAGASCAR.

April 28th, "Touareg" from Mamooka.

- Messrs. Magnac, Petite Rivière.
 — Nayna, Rose Hill.
 — Sauzier, Grand River.
 — Cowie, Mahebourg.
 Mrs. Widow Hardouin, Savanne.
 Messrs. Longprez, Curepipe.
 — Renaud (sent to Rochebois and killed for consumption.)
 — J. P. François (they were in good condition, sent to Vallée des Prêtres and killed for consumption.)
 — Zéphir do. do.
 — Marie (in good condition, sent to Vallée des Prêtres for consumption.)
 — Brunet do. do.
 — Denise do. do.

April 8th, "Java Packet" from Tamatave.

2 lost during the voyage.

- Messrs. Denise (in good condition, sent to Vallée des Prêtres for consumption.)
 — Brunet do. do.
 — Marie do. do.
 — Docinthe (Batterie Dumat.)

May 16th, "The Holland" from Tamatave.

22 lost during the voyage.

- Messrs. Brunet, Vallée des Prêtres.
 — Renaud, sent to Vallée des Prêtres; some killed for consumption and the rest by order of General Board of Health.
 — Marie (he says that he received none out of this cargo.)
 — Denise, Vallée des Prêtres.
-

ANNEXURE (J)

LETTERS, MEMOS & EXTRACTS

RELATING

TO THE CATTLE PLAGUE.

Grande case noyale,
14 Janvier 1880.

RIVIÈRE NOIRE.

A Monsieur Para.

Monsieur,

Je suis très heureux de pouvoir être utile à M. le docteur Davidson, Secrétaire de la Commission d'Enquête sur l'épizootie, et de pouvoir lui donner les renseignements qu'il désire :

J'ai inoculé plusieurs bêtes à la Case Noyale, toutes ont été inoculées en ma présence par mon cocher, Alfred Moutien, assisté de plusieurs hommes, car il fallait les abattre, une fois couchées leur lier les jambes pour les empêcher de remuer pendant l'opération qui était toujours faite avec une très grande vitesse.

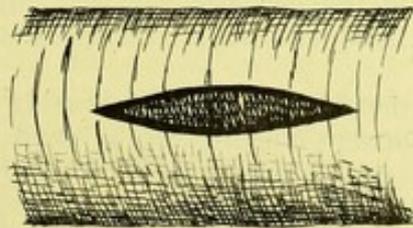
Sur 15 bêtes inoculées 3 seulement sont mortes. Quelques unes ont été opérées avant que les symptômes de la maladie ne fussent avancés, ainsi seulement tristes et la tête basse.

D'autres ont été inoculées la maladie étant déjà très avancée, ainsi la tête basse, mucosités aux naseaux, poils rebroussés ; se plaignant et ayant des frissons par moments. Malheureusement quand on m'a conseillé l'inoculation j'avais déjà perdu presque tout mon troupeau. Mon opinion est, que j'aurais sauvé les $\frac{3}{4}$ et peut être plus de mon troupeau, si au début de la maladie j'avais connu l'inoculation. L'établissement Chamarel était en coupe et avait déjà perdu plusieurs bêtes. Dès que j'ai appris que la maladie y avait éclaté, j'ai envoyé à mon ami, M. F. Baretty, mon cocher pour inoculer ses bœufs ; sur 39 bœufs qui existaient encore, inoculés par Alfred Moutien, j'ai eu le plaisir d'en voir conserver 31.

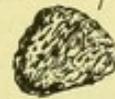
Voici comment a été faite cette opération : à un pouce $\frac{1}{2}$ à peu près au-dessus du panache de la queue du bœuf, j'ai employé le scalpel et fait faire une incision d'un pouce de longueur, on y a introduit un petit morceau du poumon d'un bœuf mort de l'épizootie (de la grandeur d'un ongle du petit doigt de la main). Les bords de cette incision ont été rapprochés et bandés fortement, quand la petite plaie s'est cicatrisée, la queue s'est desséchée à cet endroit de la ligature faite et le panache de la queue est tombé de lui-même.



incision placée à
un pouce $\frac{1}{2}$ du dessus
du panache de la queue
du bœuf.



grosseur du
morceau de poumon



grandeur de l'incision faite sur la queue et grosseur
du morceau de poumon introduit.

Je ne puis pas préciser le nombre de jours pour la cicatrisation ; dans mes souvenirs je crois qu'il devait bien s'écouler une douzaine de jours.

Je me rappelle au souvenir du docteur Davidson dont j'ai eu le plaisir de faire la connaissance il y à quelques jours, et vous prie, Monsieur, de me croire,

Votre bien dévoué,

F. DE LA BUTTE.

Memo for Mr. Beard of the Civil Hospital.

Mr. Seymour, of the Customs, in a letter dated 5th December 1879, states that *four* (4) hides were landed from the French Mail in April last, and *seven* (7) in May. These are stated to have been consigned to Mr. Brémon. This is in the hand-writing of Mr. Beard. Will Mr. Beard kindly ask Brémon of this is correct, and also where he stores his hides, and especially where he stored the hides referred to, and what became of them ?

Mr. Beard will be good enough to try to get the most complete information upon this point.

Are the hides landed at the Custom house first, or are they sent direct to Mr. Brémon's premises, or are they landed at Blyth's ? Would they have been carted or carried ? Were they exported again, or if sold in Mauritius who bought them ?

A. D.

Civil Hospital,
12. 1. 80.

Sir,

I have seen Mr. Brémon, he told me that the four hides landed from the French Mail in April last have been consigned to him. The hides were landed with a permit by the Customs and placed under the wharf, and two or three days afterwards they were *carted* and sent to his country house at Roche Bois. The 4 hides were exported to London.

Your very obedient servant,

G. N. BEARD.

Port-Louis, 12. 1. 80.

My dear Sir,

This is the information which I can give you about former epizootics in Mauritius.

A "memoire sur les maladies épidémiques des bêtes à corne aux îles de France et de Bourbon par Ch. M. Beauvais de Préaux" was published in Paris in 1873; — and my agent in Paris has vainly tried to find out for me a copy of that Pamphlet.

Mr. de la Butte of Black River has kindly lent, through Colonel O'Brien, the old Newspaper which I enclose and in which you will find an account of the cattle epidemic which existed in Mauritius in 1823.

On the 27th March 1824, Governor Sir Lowry Cole issued a Proclamation to prevent "the unusual mortality amongst horses, mules, and cattle."

In Mr. Olivier's Report, of which you told me that you had a copy, you will find information about the disease of 1844-47.

In referring to the local laws, I see that Ord. 57 of 1844 was passed, on the 23rd September of that year and ceased to be in force on the 12th February 1845.

The disease, having re-appeared in 1847, Ord. 28 of 1847 was enacted on the 2nd of October of that year. Some of the provisions of that Ordinance were repealed on the 12th October 1847, whilst, on the 10th April 1848, Ord. 14 of 1848 "extended some of its provisions to goats, sheep and other tamed animals." A proclamation of the 7th September 1848 declares "that the contagious disease which has prevailed among the horned cattle of the island has entirely disappeared."

If you wish to refer to those enactments, I hold them at your disposal. Mr. de la Butte having expressly recommended that his old Newspaper be returned to him, I beg of you to let me have it back at your convenience.

Very truly your's,

V. NAZ.

To

Dr. Davidson.

Extract from the New Mauritius Gazette.

October 11th 1823.

“ L'animal à l'air pesant, endormi, il penche la tête, chancelle sur ses jambes et semble à tout moment près de tomber, ce qui lui arrive rarement, excepté quand la maladie est à son plus haut point ; il éprouve des mouvemens dans la poitrine, les secousses sont pénibles et précipitées, il à souvent les yeux et la bouche jaune, et dans tous les cas il a l'œil éteint. On a observé dans quelques cas qu'il lui sortait par les naseaux et par la bouche une quantité considérable de matière pituiteuse, et que l'anasarque attaquait particulièrement le fourreau &c., l'abdomen était tendu, les sécrétions mauvaises, l'appétit se soutient, mais il est irrégulier et languissant.”

Autopsie cadavérique d'un bœuf mort le 26 Septembre 1825 chez M. Duffau, étant le septième et le dernier—par M. Vétu.

“ Après l'ouverture de la cavité abdominale on voyait les intestins flotter dans un fluide jaunâtre très abondant, dont la totalité était au moins de 30 bouteilles. L'épiploon se présentait dans son entier d'un rouge très éclatant et la face reposante sur la face externe du Rumen était parsemée de nombre de tâches noires de la largeur d'un sou marqué, cet organe, quoique enflammé, n'était nullement décomposé. Le premier estomac (le rumen) était rempli d'alimens ayant subi la première élaboration, mais ne peuvent être expulsés de ce ventricule par les désordres suivans. Le deuxième estomac (le bonnet) était également chargé et rempli jusqu'à l'orifice de son prédécesseur, et ne pouvant non plus exercer ses fonctions par le fait ci-après. Le troisième estomac (le feuillet) extrêmement dur, affaissé sur lui-même, et les matières contenues dans ce ventricule en partie desséchées dans ses cellules. Le quatrième estomac (la caillette) dans l'état de viduité. La membrane externe sans altération, et la gastrite de ce viscère légèrement enflammée dans toute son étendue. Le canal alimentaire offrait en général le même désordre, mais le colon offrait ce qu'il y avait de plus remarquable, cette portion de l'intestin était à sa surface d'un rouge pâle, l'ouverture laissait voir un état de décomposition de la muqueuse au point qu'en renversant sur le doigt la partie incisée en long, les membranes muqueuses tombaient d'elles-mêmes en lambeaux. La versal rouge à l'extérieur et sans aucun signe d'inflammation à l'intérieur. La râte ferme est dans son état naturel. Le foie de couleur bleuâtre était dans toute sa consistance et ne paraissait déroger à sa couleur naturelle que par la quantité de sang dont il était gorgé. La vésicule du fiel énorme, descendue à son plus haut degré et remplie d'une bile très verte, bien fluide et inodore. Le rein et ses annexes sans altérations.”

(Signé) W. A. BURKE,—C. M. D.

Pour traduction conforme F. E. S. VERET,
Traducteur du Gouvernement.

*True copy of letter addressed to Dr. Davidson by
Mr. Vigoureux de K/morvan.*

Pointe aux Roches, 30th November 1879.

Dr. ANDREW DAVIDSON.

Civil Hospital.

Dear Sir,

I trust that you will be so kind as to excuse me for not having answered in due time your letter of 19th instant, which reached me on the same day, when you will be aware that I have been prevented from so doing by sickness.

Unhappily I am almost never in town before 1 or 2 P.M. so that I cannot call on you at the Civil Hospital at the hours during which you are there. But I will take the liberty of putting and forwarding you by writing my idea on the cattle disease.

I

C'est une chose connue à Roche-Bois qu'avant l'apparition de la maladie chez Madame Jamet, un Monsieur Pierre, grand éleveur de *moutons* dans les hauts de Roche-Bois, Route Liénard, avait déjà perdu des bœufs, morts les uns après les autres et que ses premiers bœufs morts avaient été mangés par ses hommes, principalement des Mozambiques, qui, à la suite, ont été malades de diarrhée. Bien que cette antériorité soit hors de doute, il n'est guère possible de la préciser, parceque la mortalité de ces bœufs n'a pas été ébruitée et que M. Pierre, voyant qu'il en perdait excessivement, a envoyé, sans rien dire, les survivants soit à l'abattoir municipal, soit dans d'autres localités. Même plus tard, toute la vérité n'a pas été déclarée au gardien sanitaire lors de l'enquête faite par ce dernier. Néanmoins je suis porté à croire que la maladie a éclaté chez M. Pierre, *au moins* vingt jours avant d'atteindre le troupeau de Madame Jamet. Il serait possible d'être fixé d'une manière plus sûre et plus positive en compulsant le registre de l'abattoir, on y verra la date où M. Pierre a augmenté la tuerie de ses bœufs ou bien l'époque à laquelle il a commencé à tuer des bœufs, si auparavant il ne tuait que des moutons.

II

Dès le commencement j'ai émis l'opinion que la maladie venait d'Aden — d'abord, parceque M. Pierre, étant le plus grand éleveur de moutons de Maurice, a dû en avoir d'Aden, venus par la Malle, les moutons pouvant, quoique n'étant pas malades, porter le miasme dans leur toison, ensuite parceque j'ai su que la variole existait à Aden et

qu'elle est bien souvent suivie et quelquefois accompagnée de la Peste bovine.

J'ai plus tenu encore à mon idée en apprenant ultérieurement qu'au moins une malle avait porté d'Aden des peaux de bœufs et que chaque malle faisait ici avec des bouchers ou des éleveurs de bœufs l'échange d'un ou deux bœufs restant de l'approvisionnement du navire contre des bêtes en meilleur état que celles de la Malle, qui avaient pâties pendant la traversée.

Tout cela peut être vérifié par les manifestes de chaque Malle et par les livres de la Douane qui constateront si *avant et pendant* le mois de Mai il y a eu importation de moutons et de peaux de bœufs par les malles de même que le livre du commissaire de chaque malle doit constater les échanges de bœufs entre l'armement et les éleveurs de bœufs et bouchers de Maurice. *

Tels sont, cher Monsieur, les renseignements que je puis vous donner, étant prêt et disposé d'ailleurs à répondre à toute question qu'il vous conviendrait de me poser au sujet de l'épizootie.

En vous renouvelant mes excuses de n'avoir pu vous répondre plus tôt, je vous prie de vouloir bien agréer l'assurance des sentiments distingués

de votre tout dévoué,

(Signé) VIGOUREUX de KIMORVAN.

“ SENTINELLE ” DU 7 MAI 1879.

Attention.

Nous apprenons que depuis ces quinze derniers jours une épidémie a éclaté à Roche-Bois sur les bœufs de la propriété Jamet. Il est mort la semaine dernière, onze bœufs dans un troupeau de 42 bêtes. Depuis avant hier, il y a eu de nouvelles mortalités, et tout laisse à craindre que nous ayons affaire à une épidémie dangereuse. Nous engageons la Commission Générale à veiller à ce que tous les bœufs qui meurent ainsi soient brûlés au lieu d'être enterrés.

* See the Returns from the Customs House, also the Statement of the Inspector of the Abattoir.

**Statement shewing the total number of animals
destroyed or died in the different districts of
Mauritius from the beginning of the cattle
plague to the 27th December 1879.**

DISTRICTS.	Description of animals.			Remarks.
	Oxen.	Pigs.	Deer.	
Port Louis	797	1 sheep.
Pamplemousses	2683	...	...
Riv. du Rempart	1180	6	...	
Flacq	4948	...	...
Grand Port.....	4378	17	...	
Savanne	1521	...	...
Black River	8730	...	...
Plaines Wilhems	1243	...	423	
Moka	1497	...	...
Total.....	26977	23	423	

17. 1. 80.

F. A. MARTIN,
Chief Clerk.

EXTRACTS FROM REPORTS
In Sanitary Warden's Office, respecting the pre-
vailing Cattle Epidemic.

Vallée Pitot 1879.
 May 22nd.

Mr. Bradshaw v. s., reported 55 mixed cattle, the property of Mr. Brunet, grazing on lands (marked *No. 1* on sketch) to be affected with disease—19 shewing symptoms thereof.

At the same time Mr. Bradshaw reported that of 25 animals located at Battery Dumat, (*No. 2* on sketch), 6 were manifestly affected.

The destruction of all these animals was ordered by the President of the Board, and on account of the difficulty of effecting such destruction at Battery Dumat, the animals there located were mixed with those in Vallée Pitot, and, after many of them had died, before graves could possibly be made, they were eventually buried on the slope of the Mountain *at No. 1*.—The number being increased by 1 stray animal.

The animals, which had to be kept together for two days whilst I was raising a fold in which to enclose and distroy them, broke away on the morning of the second day, and several of them rushed down the hill into the hamlet at Vallée Pitot, which was almost entirely occupied by cow-keepers, and here one animal which had half buried itself in a small hay stack fell and died.—The stack was burned and disinfectants liberally used, in order as far as possible to prevent the spread of disease. I mention this circumstance as the out-break amongst milch cows took place, and raged with the greatest violence in the immediate proximity of the place where the hamlet had been invaded by the affected animals.

Battery Dumat 1879.
 May 22nd.

As regards the 25 animals at Battery Dumat, Mr. Bradshaw mentioned to me that some few of them had formed part of Mr. Denise's herd in Vallée Pitot; but that the greater part of them came from Vallée des Prêtres.

Vallée des Prêtres
 1879,—May 26th.

On the 26th May, three animals were found dead on pasturage of Mr. François at Vallée des Prêtres (*No. 3* on sketch) and a fourth animal found in the same locality was destroyed.—All were seen by Mr. Bradshaw and reported diseased.—No owner could be found for them.

May 27th.

On the 27th May, I took over by order of the President the following animals, which were pointed out by Mr. Bradshaw, in Vallée des Prêtres.

18 animals found in pen of Mr. François (*No. 3* on sketch); 30 animals found in pen of Mr. Denise a few hundred yards distant from that of Mr. François (Marked *No. 4* on sketch).

Whilst taking over these animals, we observed another straying on the high-road which was obviously diseased.

It was driven with the herd to Cooper's Island, where all were destroyed.

May 28th.

On the 28th May, a herd of young cattle 20 in number located on the lands of Messrs. Wilson in Vallée des Prêtres — (Marked *No. 5* on sketch)—was taken over at the instance of owner and destroyed on Cooper's Island.

May 28th.

On the 28th May, Mr. Bradshaw having been ordered to visit the herd of Mr. Hewetson (250 in number) on land marked *No. 6* on sketch, contiguous to that of François, *No. 3*, reported "*Disease clearly established by symptoms before and after death,*" and in conformity with instructions of President I took over the herd on the 29th and conducted it to Cooper's Island for destruction; but on the same day it was returned to the charge of Mr. Hewetson at Vallée des Prêtres, and kept under observation.

June 4th, 5th & 6th.

On the 4th and 5th June, the herd became generally infected, 6 deaths taking place, and on the morning of 6th June it was again taken to Cooper's Island and destroyed.

The number so destroyed was 245.

June 1st.

On the 1st June, an animal was found straying on the land of François (*No. 3*) and was destroyed; this was seen by Mr. Bradshaw and declared to be diseased. No owner could be found, but it was presumed to belong to Mr. Hewetson's herd.

June 1st.

The same day, the 1st June, a milch cow was reported to have died close to the pen of Denise, (*No. 4* on sketch); This death took place on the night of the 31 May and Mr. Gautray, junior, v. s., who had visited the animal on the 30th reported "*died from natural causes, but not from prevailing disease.*"

June 3rd & 6th.

On the 3rd June, a milch cow was reported to have died at a short distance from pen of François, *No. 3* on sketch. This animal was visited by Mr. Gautray, senior, v.s., who reported "*Died from indigestion, no signs of prevailing disease.*"

There were 2 other cows and 2 calves in the same shed. On the 6 June, 1 cow and 1 calf died, and the remaining cow and calf remain to this day healthy.

Vallée des Prêtres
1879.—June 3rd.

On the 3 June, another milch cow in Vallée des Prêtres at place marked on sketch 7, was reported diseased and was killed by me.

Two calves of this animal which were kept in same shed were subsequently suspected to be affected, refusing their food and having generally a depressed appearance, but both rallied and are still healthy.

- June 4th. On the 4 June, a calf died on premises contiguous to those visited by Mr. Gautray, v. s., on the 3rd instant, and on the 12th a cow, the mother of the calf died also.
- June 7th. On 7th June, a calf found straying near François' pen died—obviously diseased.
- June 9th. On 9th June, a bull died on premises close to pen of Denise (*No. 4* on sketch) obviously diseased.
- June 10th. On 10th June, a cow died on premises of Mr. Herchenroder (marked *No. 8* on sketch) and the calf of this animal, which was obviously diseased, was killed at request of owner.
- June 11th. On the 11th June, two calves were found secreted in a Copse in Vallée des Prêtres about a mile higher than any point at which disease had existed—they had been illegally removed from Montagne Longue in the District of Pamplemousses, had been examined by a Veterinary Surgeon, declared healthy, and were waiting to be delivered to a butcher when the Police arrested them.
- These animals were destroyed.
- Roche Bois, June 15th On the 15th June, a cow died in the Camp of Mr. Lebrun at Roche Bois, (marked *No. 9* on sketch) near to the Lataniers River (which takes its rise in Vallée des Prêtres). A second animal, in same shed, died on the 19th, and a third one in the last stage of disease was killed, with consent of owner.
- Nicolay Road, June 19th. On 19th June, an animal died at Nicolay Road, marked (*No. 10* on sketch) this place is also close to the Lataniers River.
- Lataniers, June 22nd. On the 22nd June, a cow died at Lataniers (close to *No. 8*), another occupying same shed is perfectly healthy to this day.
- Lataniers, July 1st. On the 1st July, a cow died at Lataniers (close to *No. 7*) and *nine* in all died in same shed up to 7th instant. *Three other animals occupying same shed are still alive.*
- July 3rd. On 3 July, another cow died at Lataniers, close to *No. 8*.
- Vallée des Prêtres
July 12th. On 12th July, a bullock which had apparently escaped from some place ran up the Vallée des Prêtres Road and roamed about in the bottom of the valley, it was fired at and wounded and the next day rushed down the valley, but nothing was afterwards heard of it.
- August 4th. On the 4th August, another bullock escaped on its way to slaughter house and roamed about the valley, until the next day when it was captured.
- September 24th. On the 24th September, an animal died in the upper part of valley, but there was no suspicion of disease.

- October 1st. On the 1st October, there was another death in the valley but no suspicion of disease (cow died in calving).
- October 20th. On the 20th October, another death but not presumed to be from disease.
On same day a young animal was found straying in the valley it was apparently healthy. No one claimed it and it was destroyed.
The same day an ox under removal from Fort William to the Slaughter House escaped and took refuge in the herd of Mrs. Cayeux at the top of valley.—This animal was removed in cart to Slaughter House.
- October 22nd. On 22nd October, a yearling died in the Valley, near Police Station no suspicion of disease—emaciated and long sick.
- October 26th. On 26th October, there was another death, a heifer near calving, at place marked No. 11 on sketch.—This was I think a doubtful case, the animal only shewed signs of sickness a very few hours before death.
- October 31st. On 31st October, a large bull died not far from the above premises (No. 11) this animal had been long sick with sore throat.
The same day, a cow died on premises in immediate vicinity—and a calf on other premises also close.
Both these cases were I believed, prevailing disease.
- November 7th. On 7th November, a second cow died on premises on which a death had occurred on 31 ultimo.
- November 10th. On 10 November, a cow and calf died on separate premises in same locality.

In the foregoing extracts the progress of disease has been given in the Vallée des Prêtres, and down the course of the River Lataniers, its progress will now be detailed in Vallée Pitot where 81 animals were buried, several of which before destruction rushed down the hill into hamlet occupied by cow-keepers &c., &c.

- Vallée Pitot, June 1st. On 1st June, the first death took place amongst milch cows—autopsy was made of the animal (a cow) by Mr. Gautray, senior, v. s., who reported "*la vache est morte d'une congestion des poumons elle n'a offert aucun signe de l'épizootie.*"
Within 9 days four other animals stalled in same shed died.
- June 2nd. No mortality.
- June 3rd. On 3rd June four animals died—2 cows, 1 heifer and 1 calf—autopsy made in each case by Mr. Gautray, senior, v. s.

The cows and heifer reported to have died from "prevailing disease"; the calf "*through natural causes, presenting no signs of the prevailing disease.*"

Within ten days after, another animal died and 3 others were destroyed in last stage of disease which had been stalled in same shed as the calf above mentioned.

June 4th.	On 4th June, four animals died.
Vallée Pitot, June 5th.	„ 5th „ one animal.
	„ 6th „ two animals died.
	„ 7th „ one „
	„ 8th „ six „
	„ 9th „ seven „
	„ 10th „ three „
	„ 11th „ nine „
	„ 12th „ four „
	„ 13th „ twelve „
	„ 14th „ four „

In all, fifty-eight animals.

June 13th & 14th. On the 13th and 14th June, 183 animals, all remaining in the valley, were taken over by order of the Board and destroyed — many of them manifestly affected with the disease. The place where the mortality occurred amongst milch cows is marked *No. 12* on sketch.

Nyon street, July 21st On 21st July an animal died from disease in Nyon street, about a third of a mile down the course of the Pucelles stream from Vallée Pitot,—Marked *No. 13* on sketch.

Except at Vallée des Prêtres no disease has since existed in any part of the town district.

GEORGE JENNER,
Sanitary Warden.

14th November 1879.

INDEX TO SKETCH ACCOMPANYING EXTRACTS FROM WARDEN'S RECORDS OF CATTLE EPIDEMIC

No. 1	Animals in Herds	Stalled animals	Date of appearance of Disease	REMARKS
1	55	.....	22" May 79	
2	26	.....	22" " "	
3	24	5	26" " "	
4	31	2	27" " "	
5	20	.....	28" " "	Destroyed at request of owner
6	252	.....	28" " "	
7	.....	10	3" June "	
8	.....	4	8" " "	
9	.....	3	15" " "	
10	.....	1	19" " "	
11	.....	7	26" October "	
12	.....	241	1" June "	Position contiguous to No. 1
13	.....	1	21" July "	
TOTAL	408	274		
		} 682		

GEORGE JENNER
Sanitary Warden.

Rose Belle, 1st November 1879.

A. DAVIDSON Esqr., M.D.,

Secretary to the Cattle Plague Commission.

Sir,

With reference to your letter of yesterday I would beg—as an error may influence many of your calculations—to call your attention at the outset to the dates you give for the origin of the diseases on Mare d'Albert, Rose Belle, Joli Bois and La Flora Estates.

On enquiring on *Mare d'Albert* estate on the 19th May, I was informed that three cattle had been left at Petite Rivière sick, and that there then was one ox on the estate ailing. This ox had come with the rest and the disease with which it was affected was, I was informed, some kind of intestinal disorder. Whilst I was speaking to the book keeper, a man came up to say that the ox was dead. I was told that he had been "*triste*" since the day before, would neither eat nor drink anything since 1 or 2 o'clock in the day time, and that on the morning of my visit, he was attacked with "violent diarrhœa." These symptoms seem to me to be so suspiciously like the cattle disease that it would hardly be prudent I submit, to consider that "the disease appeared on Mare d'Albert estate on the 26th May."

Rose Belle estate.—I find, on reference to my note-book, that on Monday, the 9th June, I saw a bullock on Rose Belle Estate with the following symptoms: running at the nose of clear mucus; hair bristling; bad appetite; diarrhœa.

Joli Bois estate.—A cow died on this estate on the 11th June. Mr. Florens decided that the disease was probably! *not* typhus.

La Flora estate.—Two cows were found *dead*, on the 13th June, of typhus.

On both the last two estates the animals had probably been ill before their death for a space of two or three days at least, so that the dates given in your letter for the whole four estates are not strictly, I submit, to be depended upon, and I have taken the liberty of calling your attention to this fact for fear that you should use them in calculating for incubation.

I beg now to proceed to the remaining part of your letter—you ask whether I am aware of any facts bearing upon the way in which the contagion spread from Mare d'Albert.

10. I find that, on the 4th June, an Indian was brought to me by one of the guardians set on Mare d'Albert Estate because he (the Indian) would persist in cutting grass on the spot where the infected cattle *had been*.—The cattle had, at that date, all been destroyed. The man brought to me came from "Joli Bois" Estate.

20. I have heard rumours that (Indian) owners of cattle came from "La Flora" Estate to see the *new* disease, its symptoms &c., but I could catch none of these men.

30. I have myself turned off women and children who would persist in coming near where the diseased cattle had grazed with the intention of cutting grass directly the attention of the Board's officers was withdrawn.

In spite of the above facts, subsequent experience has led me to believe that it is more probable that the disease was conveyed through the air to the estates in question than by either of the *direct* means indicated above.

With respect to the questions put on the 3rd page of your letter, I beg to state in reply.

That up to the 19th May the cattle on Mare d'Albert estate which had come from Petite Rivière were *not* isolated and two cattle which had not left the estate had contact with them. Up to the 26th, the Board's instructions did not permit of its officers being continually on the estate; but from that date, the cattle were strictly isolated and guarded so far as contact with other animals is concerned. There was, however, no means for preventing the movement of human beings.

On the 19th May, previous to the disease having broken out to the Board's knowledge, I obtained from the proprietor of the estate permission that the cattle from Petite Rivière should be moved away from the vicinity of the mill-yard and camp, and taken to an isolated spot in the cane fields about $1\frac{1}{2}$ miles to the S.W.

Here, they were ordered to be divided into three herds placed at right angles with the prevailing wind, and sheds were erected on the spot to protect them during the night.

None of the Board's men guarded the oxen until the 26th,* but the whole number of animals was afterwards forthcoming, and I have no reason to believe that the herdsmen allowed any to escape—even temporarily.

Immediately the presence of the disease was certainly ascertained (26/5/79) an order was given to destroy the whole herd from Petite Rivière — which order was carried out—and a guard was put night and day round the spot where the Indians' cattle were kept.

There were 12 men to watch, and an Inspector specially appointed to visit them at all hours night and day—I myself also made check visits both night and day.

No cattle were moved from the estate by any body.

I learned, when it was too late to remedy matters, that one of the Board's guardians placed on Mare d'Albert Estate (a man called Mohunsing) lived in a house facing

* That is, until it was too late to prevent the spread of the disease in Grand Port.

the high-road nearly opposite Rose Belle Estate Mill. This man took his meals at his home every day and was in the habit frequently of walking to his work with the overseer in charge of the cattle of Rose Belle Estate.

As regards "Joli Bois" and "La Flora" estates I can give no instance of communication having occurred, but as these are neighbouring estates to Mare d'Albert, I have no doubt that such communication *did* take place among the Indians.

I should state that *Mohunsing*, the guardian referred to above, was during the whole time he was on Mare d'Albert estate, on guard exclusively over the Indians' cattle and that none of these became infected till July 31st that is about 7 weeks *after* Rose Belle was attacked.

There is a road from Mare d'Albert Estate passing immediately alongside the pen in which the cattle on Rose Belle estate were enclosed at night. This road is used by the Mare d'Albert estate laborers in going to some fields situated beyond Rose Belle pen. There was an interval of 21 days between the first death on Mare d'Albert estate and the first case on Rose Belle estate. In order to finish the killing on Mare d'Albert estate rapidly, the operation was prolonged into the night. It rained in torrents nearly the whole time and was very cold. In spite of all the efforts of the Board's officers and of Policemen put to help, it was found impossible to prevent some of the laborers deserting into the canes and returning to camp without washing and disinfecting their feet and hands, which were bedabbled with blood from the dead oxen. It was thought at the time—that these men, in going to their work by the road near the pen might have carried the infection to the cattle on Rose Belle estate.

The space between the two herds was about a mile—in a straight line—and sometimes less—Direction of Rose Belle herd about north. The cattle were moved about so that the distance was not always the same.

The herd, on its road to Mare d'Albert estate, passed through Rose Belle estate but there is no reason to believe that there was any contact between the animals.

There are no canals or streams which could have become a vehicle for carrying the disease from Mare d'Albert estate to either of the states in question in your letter.

I have the honor to be

Sir,

Your obedient servant,

FRANCIS F. HALL,

Sanitary Guardian.

STATEMENT OF MORTALITY FROM MAY 16TH TO JUNE 15TH 1879 INCLUSIVE.

	Draft oxen.	Bulls not draft.	Cows.	Steers and Heifers.	Calves.	Indian proprietors.	Proprietors genl. public.	Total.
<i>Killed whilst healthy.</i>								
Grand Port.—Mare d'Albert Estate	7	....	..	....	..	....	7	7
<i>Killed when infected with cattle disease.</i>								
Grand Port.—Mare d'Albert Estate	} 60	....	..	....	..	....	60	60
<i>Died of cattle disease.</i>								
Grand Port.—Mare d'Albert Estate	} 67	....	..	....	..	....	67	67
Total.....			67	67

Rose Belle,
2nd November 1879.

FRANCIS F. HALL,
Sanitary Guardian.

STATEMENT OF MORTALITY FROM 16TH JUNE TO 15TH JULY INCLUSIVE.

	Draft cattle.	Bulls not draft.	Cows.	Steers & Heifers.	Calves.	Indian Proprietors.	Proprietors General Population	Total.
<i>Died of Cattle disease.</i>								
Grand Port :—								
Beau Vallon Estate	47	1	7	..	4	1	58	59
Bonne Source „ . . . . .	..	..	1	..	1	2	..	2
Deux Bras „ . . . . .	..	..	1	..	..	1	..	1
Gros Bois „ . . . . .	..	..	9	..	3	12	..	12
Joli Bois „ . . . . .	..	..	3	..	..	..	3	3
La Barraque „	1	..	..	..	..	..	1	1
La Rosa „	15	..	..	..	..	..	15	15
Mon Désert „	108	3	80	15	63	13	256	269
Mon Trésor „	5	..	..	..	..	..	5	5
New Grove „	36	..	..	..	..	..	36	36
New Grove, Road Village	..	..	3	..	1	4	..	4
Nouvelle France Locality	..	..	1	..	..	1	..	1
Plaisance Estate	118	11	31	11	8	49	130	179
Riche-en-Eau „	3	..	1	..	..	..	4	4
Rivière Créole „	1	..	..	..	..	..	1	1
Rose Belle „ . . . . .	..	2	29	3	15	49	..	49
Rose Belle Village . . . . .	..	..	3	2	4	9	..	9
Ruisseaux Copeaux Hamlet	..	1	3	..	2	6	..	6
Savinia & Souffleur Estates	40	..	1	..	..	1	40	41
Union Park „	3	1	7	1	1	10	3	13
Union Vale „	56	1	4	3	7	15	56	71
Virginia „	63	1	4	1	1	7	63	70
Savane :—								
Beau Bois Estate	1	..	..	..	..	..	1	1
La Flora „	28	3	50	10	13	76	104	104
Riche Bois „	1	..	..	..	..	..	1	1
Savannah „	15	..	..	..	..	..	15	15
<i>Killed whilst healthy.</i>								
Grand Port :—								
Joli Bois Estate	52	..	..	..	..	..	52	52
<i>Killed when infected.</i>								
Grand Port :—								
Joli Bois Estate	34	..	..	..	..	..	34	34
La Barraque „	1	..	..	..	..	..	1	1
La Rosa „	1	..	..	..	..	..	1	1
Mon Désert „	80	..	..	..	..	..	80	80
Mon Trésor „	1	..	..	..	..	..	1	1
New Grove „	4	..	..	..	..	..	4	4
Plaisance „	14	..	..	..	..	..	14	14
Rose Belle „	65	..	..	..	..	..	65	65
Union Park „	42	..	..	..	..	..	42	42
Union Vale „	9	..	..	..	..	..	9	9
Virginia „	1	..	..	..	..	..	1	1
Rose Belle Village . . . . .	..	..	2	..	..	2	..	2
Savannah Estate	34	..	..	..	..	..	34	34
La Flora „ . . . . .	..	1	20	..	10	31	..	31
	879	25	260	46	133	289	1054	1343

Rose Belle,

FRANCIS J. HALL,

17th July 1879.

Sanitary Guardian.

STATEMENT OF MORTALITY FROM JULY 16TH TO AUGUST 11TH 1879 INCLUSIVE.

	Died of cattle disease.					Indian proprietors.	Proprietors public generally.	Total.
	Draft cattle.	Bulls not Draft.	Cows.	Steers and Heifers.	Calves.			
GRAND PORT :								
Anse Jonchée Estate	82	..	..	..	..	..	82	82
Astroea "	25	..	..	1	..	1	25	26
Beaufonds "	22	..	10	..	4	13	23	36
Beau Vallon (D) "	1	..	..	..	..	..	1	1
Veau Vallon (R) & Riv. La Chauz Estates	79	4	146	17	161	53	354	407
Bel Air Village	..	1	..	..	1	2	.....	2
Bonne Source Estate	..	..	9	4	4	17	.....	17
Cent Gaulettes Village	..	..	1	..	..	1	.....	1
Deux Bras Estate	2	..	21	10	7	38	2	40
Escalier Village	..	..	3	4	..	5	2	7
Gros Bois Estate	..	1	68	15	17	100	1	101
Joli Bois "	..	2	36	14	1	53	..	53
La Barraque "	19	2	23	13	15	53	19	72
La Rosa "	..	1	2	2	2	7	.....	7
Les Marres Village	..	1	6	1	..	8	.....	8
Le Val Estate	1	..	..	..	..	..	1	1
Mahebourg Village.	..	..	..	1	..	1	.....	1
Mare Chicose "	..	..	1	..	..	1	.....	1
Mare d'Albert Estate	..	3	10	3	2	18	.....	18
Mare d'Albert Village	..	..	4	1	..	5	.....	5
Mon Désert Estate..	..	2	11	3	6	19	3	22
Mon Trésor "	5	..	6	..	4	6	9	15
New Grove Road Village...	..	..	11	1	1	12	1	13
Plaines Magnien "	..	..	3	..	..	3	.....	3
Plaisance Estate	..	4	36	16	15	71	.....	71
Riche en Eau & Ct. Gaulettes Estates	27	2	17	10	5	11	50	61
Riv. Créole Estate..	9	..	13	4	..	17	9	26
Riv. Créole Village..	..	..	1	..	..	1	.....	1
Rose Belle Estate	..	5	20	6	14	45	.....	45
Rose Belle Village..	..	..	8	..	2	10	.....	10
Ruisseau Copeaux & Ste. Hélène Hamlets	..	2	14	8	8	32	.....	32
Savinia & Souffleur Estates	50	..	18	..	2	..	70	70
Union Park Estate..	18	8	52	21	28	109	18	127
Union Vale "	11	1	35	10	19	65	11	76
Virginia & Sauveterre Estates	5	7	53	3	4	61	11	72
SAVANNE :								
Bois Chéri Estate	..	..	1	..	1	2	.....	2
Bénarès "	12	..	..	..	..	..	12	12
Camp Diable Village	..	..	1	..	..	1	.....	1
Constance & Bon Accueil Estates	127	..	..	..	..	..	127	127
Grand Bois Village	..	..	3	..	..	3	.....	3
La Flora Estate	2	..	..	..	..	..	2	2
Riche Bois "	7	..	..	..	..	..	7	7
Savannah "	30	5	28	4	1	36	32	68
St. Aubin "	99	..	..	..	..	..	99	99
Sundry places	2	..	7	1	1	9	2	11
Carried over..	635	51	678	173	325	885	973	1862

STATEMENT OF MORTALITY FROM JULY 16TH TO AUGUST 11TH 1879.—(Continued).

	Killed when infected.					Indian proprietors.	Proprietors public generally.	Total.
	Draft cattle.	Bulls not Draft.	Cows.	Steers and Heifers.	Calves.			
Brought forward..	635	51	678	173	325	885	973	1862
GRAND PORT :								
Deux Bras Estate	3	..	..	..	..	..	3	3
La Barraque ,,	5	..	..	..	..	..	5	5
Les Bambous ,, .. ..	..	..	..	..	1	1	..	1
Riche en Eau and Cent Gaulettes Estates .. .. ..	..	..	..	1	..	1	..	1
SAVANE :								
Bois Chéri Estate .. ..	..	..	1	..	..	1	..	1
Riche Bois ,,	40	..	..	..	..	..	40	40
Savannah ,,	5	..	1	..	..	1	5	6
St. Aubin ,,	1	..	..	..	..	..	1	1
Total	689	51	680	174	326	889	1027	1920

STATEMENT OF MORTALITY FROM 12TH AUGUST TO 10TH SEPTEMBER 1879 INCLUSIVE

	Killed whilst infected.	Died infected.					Indian proprietors.	Proprietors among general population.	Total.
		Draft oxen.	Draft oxen. Bulls not draft.	Cows.	Steers and Heifers.	Calves.			
GRAND PORT :									
Anse Jonchée Fstate	80	..	15	4	4	24	79	103
Astrœa	4	6	22	8	1	32	9	41
Beaufonds	8	1	4	13	..	13
Beau Vallon & Riv. La Chaux Estates.	..	1	1	13	9	3	22	5	27
Beau Vallon (D)	45	15	77	19	9	107	58	165
Bel Air Village	6	1	..	7	..	7
Belle Vue Estate	15	..	..	..	..	..	15	15
Bonne Source	2	1	2	5	..	5
Cent Gaulettes Village	4	1	2	7	..	7
Cluny Estate	1	28	9	8	46	..	46
Deux Bras Estate	16	9	7	32	..	32
Eau Bleue	29	..	1	..	..	..	30	30
Escalier Village	1	1	..	2	..	2
Ferney Estate	73	8	42	13	18	81	73	154
Gros Bois	12	2	5	16	3	19
Joli Bois	1	..	..	1	..	1
La Barraque Estate	1	..	2	23	7	9	41	1	42
Les Bambous	54	..	2	..	..	2	54	56
Le Val	3	..	28	4	..	32	3	35
Mahebourg Village	4	1	..	5	..	5
Marre Chicose	1	1	..	2	..	2
Marre D'Albert Estate	1	18	7	6	32	..	32
Marre D'Albert Village	1	1	2	..	2
Mon Trésor Estate	29	13	14	53	3	56
New Grove	1	14	7	2	24	..	24
Nouvelle France Locality	3	..	1	4	..	4
New Grove Road Village	2	6	3	1	12	..	12
Petit Sable Estate	52	..	..	..	..	..	52	52
Plaines Magnien Village	1	3	..	4	0	4
Riche en Eau & Cent Gaulettes Est.	19	8	7	32	2	34
Riv. Crooles Estate	2	..	10	..	3	13	2	15
Riv. Crooles Hamlet	2	2	1	5	..	5
Rose Belle Village	3	1	2	6	..	6
Ruisseau Copeaux & St. Helène	1	7	5	5	18	..	18
St. Hubert Estate	3	1	..	4	..	4
Union Park	10	1	5	16	..	16
Union Vale	1	1	..	1
Virginia and Sauveterre	8	20	3	1	32	..	32
SAVANNE :									
Bel Air Estate (H)	14	..	4	1	..	5	14	19
Benarès	15	52	2	29	6	5	42	67	109
Bois Cheri	6	22	6	4	38	..	38
Combo	6	..	1	7	..	7
Constance and Bon Accueil	6	..	3	1	..	4	6	10
L'Union (C) Estate	26	..	..	..	..	..	26	26
Riv. des Anguilles Estate	43	2	14	7	6	29	43	72
Savannah	6	4	1	7	4	11
St. Aubin	1	..	24	7	7	38	1	39
Sundry places	2	8	2	2	12	2	14
Total	16	500	58	567	180	148	917	552	1469

Rose Belle, 11th September 1879.

FRANCIS F. HALL,
Sanitary Guardian.

STATEMENT OF MORTALITY FROM 11TH SEPTEMBER TO 7TH OCTOBER INCLUSIVE.

	Died infected.					Indian proprietors.	General public.	Total.
	Draft cattle, Bulls and Bullocks	Bulls not draft.	Cows.	Steers and Heifers.	Calves.			
GRAND PORT :								
Anse Jonchée Estate.....	..	1	24	4	5	34	..	34
Astrœa ..	..	1	20	7	3	31	..	31
Beau Vallon (D) ..	..	2	11	9	0	17	5	22
Belle Vue ..	..	..	11	2	1	14	..	14
Cent Gaulettes Hamlet.....	..	..	1	..	..	1	..	1
Cluny Estate.....	..	2	31	2	6	41	..	41
Eau Bleue Estate ..	1	1	15	8	1	25	1	26
Escalier Village.....	..	..	1	1	..	2	..	2
Ferney Estate ..	2	1	46	10	6	65	..	65
Grand Sable ..	..	..	1	1	..	2	..	2
La Baraque Estate ..	..	..	1	..	..	1	..	1
Les Bambous ..	..	..	28	..	1	28	1	29
Le Val ..	..	..	2	..	..	2	..	2
Mahebourg Village ..	..	..	1	1	..	2	..	2
Mare Chicose Hamlet ..	..	..	6	1	2	9	..	9
Mon Trésor Estate ..	..	..	1	4	..	5	..	5
New Grove Road Village.....	..	..	3	..	2	5	..	5
New Grove Estate ..	..	..	7	3	2	12	..	12
Nouvelle France Estate ..	..	..	..	..	1	1	..	1
Petit Sable ..	7	..	..	..	..	..	7	7
Riche en Eau ..	..	1	4	1	..	6	..	6
Rivière Créole ..	..	..	1	1	..	2	..	2
Rivière Créole Hamlet ..	..	..	2	..	..	2	..	2
Ruisseau Copeaux & Ste. Hélène.....	..	..	..	..	1	1	..	1
St. Hubert Estate ..	9	..	8	1	..	9	9	18
Verger Locality.....	..	..	10	3	2	15	..	15
Virginia Estate ..	..	..	..	1	..	1	..	1
SAVANE :								
Bel Air Estate (H) ..	..	..	6	2	..	8	..	8
Bénarès ..	..	..	24	5	7	36	..	36
Bois Chéri Estate ..	..	2	14	9	2	27	..	27
Combo ..	..	0	4	2	1	7	..	7
Colmar ..	..	1	24	8	3	36	..	36
Constance & Bon Accueil Estates ..	..	1	24	17	4	46	..	46
Grand Bois Hamlet ..	..	..	1	..	..	1	..	1
Riv. des Anguilles Estate.....	..	1	22	23	7	53	..	53
Savannah Estate ..	..	..	2	..	..	2	..	2
BLACK RIVER :								
Black River Estate ..	60	..	..	..	..	..	60	60
Les Salines (Hily) ..	8	0	11	12	6	..	37	37
Case Noyale (F. de la Butte) ..	2	5	19	9	8	..	43	43
Petite Rivière Noire (Ducray).....	0	6	10	3	1	..	20	20
Total.....	89	25	396	150	72	549	183	732

Rose Belle,
8th October 1879.

FRANCIS F. HALL
Sanitary Guardian.

RETURN OF MORTALITY FROM 8TH OCTOBER TO 4TH NOVEMBER 1879 INCLUSIVE.

	Died infected.					Indian proprietor.	General public proprietors.	Total.
	Draft cattle.	Bulls not draft.	Cows.	Steers and Heifers.	Calves.			
GRAND PORT :								
Anse Jonchée Estate.....	..	..	21	1	2	24	..	24
Belle Vue ..	..	..	22	1	..	23	..	23
Eau Bleue Estate—2 Pigs ..	..	..	3	6	3	12	..	12
Escalier Village ..	..	..	1	..	..	1	..	1
Ferney Estate ..	..	..	13	1	1	15	..	15
Grand Sable ..	..	..	4	1	..	5	..	5
Mon Trésor Estate—1 Sheep ..	..	..	..	..	..	..	..	..
Nouvelle France Estate ..	..	..	..	..	1	1	..	1
New Grove Road Village.....	..	..	1	..	1	2	..	2
Old Grand Port ..	..	..	3	..	1	4	..	4
Riche-en-Eau Estate.....	..	..	3	..	..	3	..	3
Ruiss. Copeaux & Ste. Hélène hamlets ..	..	..	1	..	..	1	..	1
St. Hubert Estate.....	..	..	17	3	..	19	1	20
SAVANNE :								
Bel Air (H) Estate ..	..	..	4	1	1	6	..	6
Bénarès ..	..	..	5	1	2	8	..	8
Bois Chéri ..	..	2	2	4	1	9	..	9
Colmar ..	..	1	22	7	2	32	..	32
Combo ..	..	..	21	6	6	33	..	33
Constance and Bon Accueil Estate ..	..	..	12	5	6	23	..	23
Grand Bois Village ..	..	..	1	..	..	1	..	1
St. Avold Estate ..	..	2	34	5	2	43	..	43
Sundry places ..	..	..	2	..	..	2	..	2
BLACK RIVER :								
Case Noyale owners ..		Detail not given.				22	..	22
„ F. de la Butte ..	8	8	36	29	19	..	100	100
„ E. du B. Hily ..	..	3	40	13	11	..	67	67
„ D. de la Butte ..	..	5	21	14	2	..	42	42
Chamarel Estate ..	4	..	..	..	..	..	4	4
Coteau Raffin (D. Constantin).....	45	..	16	3	16	..	80	80
Petite Rivière Noire (Ducray).....	3	36	55	47	16	..	157	157
Do. (Highlands) ..	160	..	4	..	..	..	164	164
Rivière Noire Estate ..	68	1	3	..	2	..	74	74
Salines (E. du B. Hily) ..	56	3	23	18	11	..	111	111
Do. (Mme. Boileau) ..	4	5	24	28	16	..	77	77
Total.....	348	66	414	194	122	289	877	1166

Rose Belle,
7th November 1879.

FRANCIS F. HALL,
Sanitary Guardian.

Pamplemousses Sanitary Guardian's Office,
2nd December 1879.

To

Andrew Davidson Esq.,
Secretary to the Cattle Plague Commission.

Sir,

With reference to your letter of 27th ultimo, requesting me to afford you any information, respecting the epizootie, in my Districts, I have the honor to answer as follows to your queries.

I have the honor to be,

Sir,

Your obedient Servant,

ALFRED LE JUGE,

Sanitary Guardian.

1. The epizootie appeared on the first days of May ultimo, at Roche Bois (Pamplemousses) on a creole herd of 24 animals belonging to Mrs. Widow Jamet. I visited the place on 5th May, she had lost 7 calves; the 17 remaining animals were presenting symptoms of prostration and depression, eyes watery, a mucous fluid flowing from the nostrils, grinding of teeth.

The disease followed in this instance, as I have had occasion so often to remark, the same period of incubation viz: about 10 days; the animals almost all died affected. There remained to Mrs. Jamet but one bull, quite healthy, which was destroyed at the end of May by the orders of the General Board of Health.

The carcasses, duly disinfected with lime, were buried without delay, under the supervision and control of the Sanitary Officers. I visited the place where they were buried and could ascertain the depth of graves.

2. According to Mrs. Jamet's declaration, her herd had never shown before any sign of disease, nor had it changed locality. The nearest herd to hers was that of Mr. Renaud, (this herd was separated from the Municipal Abattoir by the "La Briqueterie Rivulet," and was infected a few days after that of Mrs. Jamet, this part of Roche Bois lies in Port Louis). It would be worthy of remark to compare the date of the outbreak of the disease at Roche Bois, with that of Mr. Magnac's herd in Black River District. This might serve as "points de repaire" for this question of introduction which has hitherto remained so obscure.

3. Up to date, there are no instances in my three districts of herds having escaped the plague. It suddenly

disappears from localities as if stopped by some invisible cause, but re-appears in the opposite direction. For instance, at "Forbach" estate (Aubin) Rivière du Rempart District, the disease suddenly made its appearance, stepped back, destroyed all the herds lying on the sea shore and in the vicinity. Esperance and Schœufeld estates, leeward to Forbach and close to it are up to now, more than 3 months, free of disease, but actually the epizootie is coming back from Flacq, in the opposite direction.

4. In my opinion the disease generally spreads through invisible agents. I base this statement on the speedy and immediate destruction of the herd (91) of Messrs Le Conte at Villevalio. I began destroying them at noon and at 5 p.m., all was over, the carcasses being sunk in the sea, in such a way as not to be driven ashore. Nevertheless the herd of Mr. West at "Balaclava", about one mile distant, was attacked a few days after. The same course was followed at "Balœclava." In less than 4 hours, 31 bullocks quite healthy (12 only presenting the symptoms of the disease in its first stage) were destroyed and buried the same day with all precautionary measures. In these two instances, no perceptible conveying agent such as flies or men having communicated with the two infected herds.

5. The period of incubation has always invariably been from 8 to 15 days. I have noticed it very easily by the course followed by the disease, since its out break at Roche Bois when, passing over cows of Indian gardeners and 12 bullocks belonging to Mr. Jules Loumeau, it suddenly made its appearance on 19th May at "La Bergerie" about 3 miles further up.

On 29th May at "Bel Air" (Rogers.)

„ 9th June at "Villevalio" (LeConte.)

„ 19th „ at "Balaclava" (West.)

6. I have witnessed but two inoculations performed by Veterinary Surgeon Bradshaw, at Bel Air (Rogers.) Both failed, the animals dying within the usual period.

One of my friends, Mr. Senneville the owner of "Mon Loisir" (Rivière du Rempart) has got inoculated 92 creole bullocks on 28th ultimo. At that moment the disease was not raging in the immediate vicinity of his herd. It will be therefore interesting to note the result. I propose supervising it, and I will be glad to communicate it to you.*

* Mr. Senneville, in answer to a letter addressed to him by Mr Para pro Dr. Davidson, says :

" Mes bœufs ont été inoculés le 20 Novembre dernier, n'ayant aucun symptôme de l'épizootie, ils étaient en parfaite santé.....

" Je vous donne cet autre renseignement qui pourrait être utile à la Commission d'enquête. Pour essayer plusieurs moyens de préserver mes bœufs de l'épizootie, j'ai envoyé le 19 Novembre 30 bœufs à Beau-Bassin, à l'établissement *Mont Roche*, la veille du jour où l'inoculation se pratiquait sur mes bœufs à la Rivière du Rempart. (See page 93.)

7. I have seen but few modes of treatment tried by planters. They all remained with no favorable result whatever viz: Purgatif Leroy—alœ juice leaves mixed with water—colonial rum (2 bottles per diem) carbolic acid—kitchen salt &c.

8. It seems to me difficult, not to say impossible, to give an exact proportion of recoveries to deaths, the ratio varying according to the breed of cattle.

For instance, bullocks from Rodrigues died, in almost all cases, without any exception.

2. Those of Aden come next.

3. Malgash.

4. The creole breed of cattle generally supports the disease with more chance of recovery; for instance at Trio (Pamplemousses) of 335 (creole) 67 recovered; at Triolet (adjoining Trio) of 338, 81 recovered (these were the 2 most important herds of cattle in Pamplemousses District.) I estimate 15 o/o for first categories and 20 o/o for the creole, but I again submit this average cannot be taken as an exact one.

8. Besides horned cattle, pigs were attacked (16 in number) at "Labourdonnais" (Rivière du Rempart) in September ultimo.

The animals I saw on 8th September were presenting symptoms of great depression and prostration with slight cough. The matter being reported to the General Board of Health, Veterinary Surgeon Gautray was sent and an autopsy was made (11th September) which disclosed no positive symptoms.

The creole coachman in the service of Mr. Wiehe, stated that he had observed yearly pigs dying at the beginning of the crop at Labourdonnais. He attributed it to the rough scum (grosse écume) proceeding from the mill, which scum, mixed with sulphur (Procédé Icery) is given by the Indians to their animals.

The disease disappeared without any appreciable cause.

ALFRED LE JUGE,

Sanitary Guardian of Pamplemousses,
Riv. du Rempart & Flacq (N. S.)

RETURN OF CATTLE DISEASE.

RIVIERE DU REMPART DISTRICT.

Date of out-break of Disease.	Estates.	Owners.	Number of Herd.	Number that Died.	Number remaining.	Remarks.
1879						
July.	31 Forbach	Aubin	107	102	5	
	Do.	Several Indians	65	60	5	
August.	8 Grand Bay	E. Martin	33	33	0	
"	19 The Vale	West	111	96	15	
"	Union	Darny & Indians ..	102	78	24	
"	24 Labourdonnais.....	Wiché & Co.....	44	24	20	
"	Do.	Several Indians	55	25	30	
"	27 Mare Sèche	Mazery	14	12	2	
"	Mon Loisir	Rouillard & Indians.	73	64	9	
"	29 Beau Plateau	Several Indians	7	3	4	
September.	29 Mapou	Leclezio	67	49	18	
October.	1 St. François	Hardy	108	77	31	
November.	4 Reunion	Maurel & Indians ..	7	3	4	
"	16 Mon Songe	Bourguignon	12	11	1	
"	17 Antoinette	Martin	128	120	8	
"	Do.	Several Indians	56	54	2	
"	25 Roche Noire	Gaud	325	98	227	Mortality 64.7 %.
December.	3 Belle Vue	Geffroy & Indians ..	145	124	21	
"	9 Mon Loisir	Senneville.....	92	88	4	
"	Do.	Several Indians	96	13	83	Recoveries 35.3 %.
"	20 Amitié	Desjardin	79	58	21	
"	Do.	Several Indians	57	11	46	
"	20 Ravin	Hardy & Indians....	30	2	28	
"	14 Le Bosquet	Lebreton	82	55	27	
"	20 Flaine des Roches ..	Jonas	4	1	3	
"	Do.	Several Indians	95	13	83	
"	Bon Espoir	Tirimoudy	30	30	0	
"	Beau Séjour.....	Gourège	66	50	16	
			2091	1354	737	

ALFRED LE JUGE,

Sanitary Guardian for Rivière du Rempart.

RETURN OF CATTLE DISEASE

AT

PAMPLEMOUSSES DISTRICT.

Date of out break of disease.	Estates.	Owners.	Number of Herd.	Number that died.	Number remaining.	REMARKS.
1879.						
May	2 Rochebois	Widow Jamet	24	24*	....	* One bull remaining was destroyed.
"	19 La Bergerie	Wiéhé & Aubin	67	67*	....	* Destroyed.
"	" Do.	Crédit foncier	34	34	....	Do.
"	29 Bel Air (Tombeau Bay)	Rogers	133	133	....	79 shot, the rest died from disease.
June	9 Villevalio	Lecomte	91	91*	....	* Destroyed.
"	" Alma	A. Lhoumeau	2	2	....	Do.
"	" Solitude	J. Lhoumeau	12	12	....	Do. (3 shot)
"	" Do.	Indian (W) Ameena ...	2	2	....	Do.
"	" Riche Terre	Indian Jobah	8	8	....	Do.
"	19 Balaclava	West	31	31	....	Do. this was the last herd which was destroyed.
"	25 Terre Rouge	Marchand	17	16	1	
July	9 Tombeau Bay	Rougier	25	16	9	
June	30 Burnside	Bestel	6	6		
July	20 Espoir (Calebasses) ...	A. Colin	108	107	1	
"	22 Mon Repos	Caniel	45	39	6	
"	25 Solitude	J. Langlois	213	198	15	
August	1 Souvenir	Samouilhan	55	48	7	
"	12 Arsenal	Shaw	14	11	3	
"	8 St. Médard	Pitot	22	22		
"	12 St. André	J. Langlois	143	140	3	
"	" Do.	Several Indians	61	61		
"	13 Triolet	J. Langlois	338	257	81	Mortality 83.8 per cent.
"	" Trio	A. Colin	335	268	67	
"	16 Bon Air	Wiéhé	35	27	8	
September	2 Beau Plan	E. Martin	17	14	3	Recoveries 16.2 per cent.
"	" Do.	Parnom	3	3		
"	3 Belle Vue	J. & N. Harel	22	18	4	
"	" Do.	F. Pilot	48	47	1	
"	" Mon Espoir	Several Indians	7	7		
"	" Fond du Sac	Two Indians	4	4		
"	" Plaine Papayes	One Indian	2	2		
"	12 Sottise	Several Indians	11	11		
"	" Ruisseau Citrons	One Indian	1	1		
November	22 Amitié	Mairgard	53	45	8	
"	29 Grande Rosalie	S. estates Comp. limited	69	61	8	
"	" Do. ....	.....	....	....
"	" Several Indians	Several Indians	10	10		
December	8 The Mount	One Indian	17	14	3	
"	9 Petite Marie	J. Martin	52	50	2	
"	10 Roche Bois	V. Jamet	30	23	7	
"	" Do.	Renaud (frères)	85	74	11	
"	19 Espérance	Crédit foncier limited ..	22	20	2	
"	20 Souvenir	Samouilhan	40	5	35	This herd was sent back to Amitié Estate (E. Desjardins).
"	22 Maison Blanche	Widow Boullé & Lemerle	20	18	2	
"	" Do.	One Indian	1	1		
"	" Petite Rosalie	Several Indians	4	4		
"	" Mon Repos	One Indian	2	2		
"	13 Mont Piton	Mrs. Gourège & Co.	60	39	21	
"	15 Mon Rocher	De Chazal	23	11	12	
1880.						
January	1 Pamplemousses village	Canot	2	1	1	
"	1 Mon Goût	Several Indians	40	27	13	
			2466	2132	334	

ALFRED LE JUGE.

Sanitary Guardian for Pamplemousses.

RETURN OF CATTLE DISEASE.

FLACQ DISTRICT—(Northern Section).

Date of out break of disease.	Estates.	Owners.	Number of Herd.	Number that died.	Number remaining.	REMARKS.	
September	30	Bel Etang	H. Tostée	154	142	12	
October	3	Constance	D'Arifat & Co.....	21	10	11	
"	11	Mon Rêve	Mrs. E. Piat.....	38	38	....
"	15	Queen Victoria.....	J. Desveaux	107	101	6	
"	16	Argy	Jeffroy & Co.	93	86	7	
"	20	L'Unité	A. Dubois fils	33	25	8	
"	24	Bonne Mère	J. Desveaux	98	85	13	
"	26	Providence.....	L. E. Brue	820	675	145	
"	29	La Gaieté	D'Arifat & Co	40	29	11	Mortality 82.2 per cent.
"	30	Beau Rivage	Montocchio & Co.	216	191	25	
"	31	Palmar	Humbert & Lagesse ..	366	286	80	Recoveries 17.8.
November	1	Petite Victoria	E. Baschet	145	117	28	
"	3	Choisy	A. Bourgault	79	57	22	
"	6	Riche Mare	Elias Mallac & Co.	27	25	2	
"	13	Australia	Bourguignon & Co.....	72	65	7	
"	6	Belle Vue	Widow Allendy	162	144	18	
"	13	Bon Accueil	B. de la Giroday.....	80	74	6	
"	16	Belle Mare.....	E. Dalais	93	37	56	
December	2	Grande Retraite	A. Bourgault	106	67	33	
				2744	2254	490	

ALFRED LE JUGE,

Sanitary Guardian for Flacq—(N. S.)

Supplementary Notes to my Report No. 451 of 2nd December 1879 addressed to Dr. Davidson.

The herd of "Mon Loisir" (Senneville) Rivière du Rempart, was composed of 92 head, generally creole breed, save a few malgash draught oxen. Disease broke out on 9th December ultimo; all these animals had been inoculated at the end of November last.

Yesterday, on my round to "Mon Loisir" I found that 88 animals had died. The four remaining (viz: 1 bullock 1 cow and 2 heifers) are in poor condition. The disease is now raging on the milch cows in the Laborers' camp.

Besides the inoculation practised on his animals, Mr. Senneville took great care of them, feeding them with manioc and patates. They were therefore fat and in very good condition for resisting the disease. Cattle pen well disinfected &c.

20. Amitié Estate (Edouard Desjardins) quite close to "Mon Loisir" (about 200 yards) herd of 79. Disease broke out on 20.12.79—58 have died. Mr. Desjardins stated he tried no treatment whatever (last death took place on 5th January, instant. Disease is now raging among milch cows in Laborers' camp.)

Mr. Desjardins, however, who had a splendid milch cow attacked with the disease, gave her to drink on the advice of Mr. Gaud (of Rochemoigne Estate) infusions of "Liane sans fin." The animal recovered.

30. Rochemoigne (Gaud, Rivière du Rempart District, on the sea-shore) herd 325. Disease broke out on 25.11.79—lost 98; the 227 remaining are now quite healthy.

On my last visit there (13.12.79) Mr. Gaud informed me his treatment chiefly consisted of injections (clysters) of pomegranate bark, and infusions of Liane sans fin, by mouth. Considering the miserable condition of the herd, all more or less attacked and symptoms fully developed, I took no notice of his statements and directed the Prisoners to continue the digging of graves, as 82 had already died. Mr. Gaud is in rather difficult pecuniary circumstances, and had claimed the assistance of the Board for burying his animals, which are his only means of livelihood.

I am rather at a loss to explain the trifling ratio of mortality of that herd compared with that of his immediate neighbours Messrs. Brue (Post of Flacq) and Lebreton (Bosquet), inasmuch as these three herds were all affected at the same time, and I am inclined to suppose that it was due to the mode of treatment employed by Mr. Gaud.

40. "Souvenir" (Samouilhan), Pamplémousses District—lost in August ultimo most part of his herd (vide Return for Pamplémousses.)

About 20th November ultimo—(the disease having completely disappeared from the District) Mr. Samouilhan received from Rodrigues a herd of 17 goats.

On the 22nd December ultimo, some of the goats began presenting symptoms of depression and diarrhœa, and in less than 6 days, 15 died. Unluckily, the epizootic regulations being abrogated (20th Nov. 79) Mr. Samouilhan made no declaration, at my office I am lead to believe these goats died from the epizootic.

About the 1st December ultimo, Mr. Edouard Desjardin of "L'Amitié" Estate, Riv. du Rempart, seeing that the disease was spreading in his locality, sent to Mr. Samouilhan, his brother-in-law, 40 of his herd, to "Souvenir", Pamplémousses. On the 20th December 1879, 5 of these animals fell sick with the disease and died—(whereupon Mr. Desjardins sent for the rest of the herd which was conducted back to "L'Amitié.") Two days after, as above stated, on 22.12.79, the goats also fall sick and died.

Is it premature to presume that these goats died of the disease? I think not, for I cannot admit that it should only be, *after one full month*, from their arrival at Souvenir, that they would have been affected by the change of air, and die so rapidly—and in so large number.

11th January 1880.

ALFRED LEJUGE,
Sanitary Guardian.

SANITARY GUARDIAN'S OFFICE,
Plaines Wilhems,
18th January 1880.

To
DR. DAVIDSON,
&c., &c., &c.
Beau Bassin.

[REPORT.]

With reference to your letter of the 7th instant, I herewith transmit, for your consideration, a tabular statement, shewing the number of cattle inoculated, in the Northern Section of Black River, and Plains Wilhems District, the only localities under my sanitary charge, in which inoculation was tried. I believe this to be the clearest way of furnishing you with full particulars in regard to the above subject.

If we can judge by the results obtained, inoculation on the whole does not seem to have been attended with any great success. However, it will be a matter for consideration, whether it had a fair chance. It strikes me that it had not, for the following reasons, which I would respectfully beg to submit for consideration, and argument.

1o. On referring to the annexed table it will be observed that with the exception of (3) herds in Black River, and (21) in Plains Wilhems, all the others were inoculated while under the influence of the disease; and on some estates large numbers had died. *

2o. The mode of operation (see notes in margin of table) was bad and performed *at a too* advanced stage of the disease, and by inexperienced persons, a fact admitted by many proprietors (vide annexed letters), and the material used for inoculation, viz: a piece of the lung of an animal which had died of the disease, and in a state of decomposition, was also apparently bad, as it caused rapid inflammation followed by mortification, which killed the cattle in my opinion faster than the disease. I will here give an instance: When Mr. D'Hotman was sent to inoculate the cattle on Rivière Dragon and Belle Vue estates, numbering some 65, the manager Mr. Langlois told me, they were all in good health. But 24 hours after inoculation, the part of the tail where the putrid substance had been inserted, swelled to an enormous size, and in 36 hours afterwards, 63 out of the 65 were dead and buried; and in cutting up the carcasses in order to have them properly buried, Mr. Langlois informed me, that the whole of the interior of the body, from the spot where the putrid matter had been inserted was mortified.

* From my remarks on this subject it will be seen that inoculation was much less fatal when practised on animals already affected.

ANDREW DAVIDSON.

30. Granting, for argument's sake, that inoculation had been resorted to at an earlier stage of the disease, and before all the herds had become infected, in order again to have given it a fair change, isolation of the different herds in my opinion was most essential. This could not however have been managed, or undertaken at Black River in consequence of the large numbers of cattle, belonging not only to the local proprietors themselves, but to the other owners on pasturage from all the Districts of the Island and amounting at the moment of the out-break of the epidemic to some 9,860 in the southern section alone of Black River. Out of these 8,149 died and 427 were shot to prevent, if possible, the march of the disease.

In support of what I have advanced in regard to isolation being essential, I will mention a fact which was brought to my notice by Mr. Eugène Kœnig, who was one of those gentlemen who followed the march of the disease on his estate with the greatest care.

He told me that there exists on the Médine Estate three different Camps, not very far distant from each other inhabited by Indian laborers who possessed a number of cattle at the out-break of the disease. In two of the said camps the Indians lost almost all their cattle, whereas in the third camp, not a single animal had died up to the 9th instant, the day of my visit.

On asking Mr. Kœnig to what circumstances, or causes he attributed such a curious fact, he replied : 10. that the laborers on camps Nos. 1 & 2 had been employed burying the carcasses of dead animals, whereas, those of Camp No. 3 had been kept exclusively for field work, and never for the burial of animals.

20. That he had remarked that the Indians of Camp No. 3 kept a very strict watch over their cattle and would allow no out-sider to approach them. Again, it will be observed, on referring to my report on Plaines Wilhems under date 3rd December (ultimo) I mentioned that a large number of cows belonging to Indians had so far as escaped, and I gave it as my opinion that it was owing to isolation and the strict surveillance kept over them by their owners, and of this I am now convinced, as shortly after the sanitary regulations had been rescinded, and free circulation from all parts of the Island allowed for horned cattle, the disease made its appearance amongst the Indians' cattle which had so far escaped, viz : on Trianon and Phœnix Estates, and *other* localities and large numbers have since died.

From the experience I have obtained since the out-break of the disease, the means by which it was spread far and wide, was that of man. No doubt, as some persons say, the martins and flies helped, but the most frequent cause of all was laborers carrying it about their clothes,

and travelling daily from place to place. It is not surprising that the disease in spite of all measures and precautions, taken both by the General Board of Health, and the proprietors themselves should have spread so rapidly, when one considers the large numbers of Creoles and Indians (at different places in my charge, I had at one time some 200 daily laborers) coming from all parts of the districts and employed at so much per day for the burial of carcasses of animals which had died of the disease. Once their day's work was over they used to return to their abodes, and there can be no doubt carried the contagion to all parts.

I will mention here a fact which will also establish how easily contagion can be spread from herd to herd. A young Creole man related to me at Black River, that when the disease commenced, he was employed by a Planter of that district to attend to his cattle which were dying off fast of the disease, and that on the next estate, about a mile and a half distant, there was another herd of some 130, and that no one was allowed to pass there, and that on his asking the reason, he was informed that the owners was afraid they might bring the disease on the estate. He said, it seemed so strange to him, that the mere fact of a person passing near healthy cattle should give them the malady, that he determined to test the fact, and one day after dark, knowing the locality well, he left the sick animals he had been amongst all day, and crossed by a back path to the next estate, passed through the cattle pen amongst the animals, and then under pretence of asking after their cattle, went to the huts of some Indians he knew, and passed his hands while talking over a few of their cows. He said, that 24 hours afterwards the whole of the herd was affected, out of which 108 died, and some of the Indians' cattle also.* Many things of a similar nature, but which I now recollect but too imperfectly, to relate truthfully, were told to me during the progress of the disease at Black River, and other districts under my charge.

I will now conclude with observing that most strict Sanitary Regulations ought to be at once framed, and most rigidly enforced should any cattle epidemics make their appearance again in the Island, as there cannot be the slightest doubt that a great deal of valuable and precious time was lost after the out-break and before proper sanitary regulations could be framed and enforced.

MARCUS R. BROWNRIGG,
Sanitary Guardian, Plaines Wilhems, &c., &c.

* This wretched representative of a class of men, who are always ready to gratify their silly curiosity at their neighbours' risk gives himself credit for the success of a villainous experiment to which he is not entitled. The disease followed too soon after his visit to have been really due to his nefarious project.

BLACK RIVER (Northern Section.)

CATTLE INOCULATED, WHILE UNDER THE INFLUENCE OF THE DISEASE.				CATTLE INOCULATED, WHILE IN A HEALTHY STATE.				REMARKS AND OBSERVATIONS.	
Names of Estates.	Names of Owners	Actual number inoculated.	Name of Operator and mode of Operation.	Number saved.	Per centage.	Name of operator and mode of operation.	Elapse of time.		Number saved.	Per centage.
Medine Estate	E. Koenig	100	Mr. Kock	32	..	.....	Days	.....	.....
La Mecque	Do.	185	By Proprietor	55	..	.....	.....	.....	.....
Eau Bonne	E. Nairac	81	Do.	12	..	.....	.....	.....	.....
Bon Asyle	Do.	93	.....	20	..	.....	.....	.....	.....
Magenta & Walhalla	G. Carcenac	300	By Proprietor	72	..	D'Hotman ..	2	7	..
Palmyre	E. Trouchet .....	.....	.....	53*	..	Do.	3 1/2	0	.....
Mon Désir	Miss Delauney ..	250	Mr. Kock .....	.....	..	Do.	20	30	.....
Riv. Dragon & Belle Vue.	R. de Belloguet ..	.....	.....	158	..	.....	.....	.....	.....
Case-là	Geffroy	360	Mr. Kock .....	.....	..	.....	.....	.....	.....
Clarence	Do. ....	.....	.....	403	29.2	.....	.....	37	10
		1374							

N. B. — Messrs. Kock and D'Hotman, inoculated cattle in the following manner, viz: By making an incision about 2 inches about the extremity of the tail, and inserting therein a piece of lung taken from an animal which had died of the disease.
By passing a seton through skin of shoulder.
* As regards this herd no exact information could be obtained.
† The whole herd died 3 days after inoculation (see Report.)

PLAINES WILHEMS DISTRICT.

Chébel	Leinard	88	Mr. Kock	28	.....	.....	.....	.....	.....
Réunion	G. Robertson ..	.....	.....	.....	..	D'Hotman and Gentrac	5	4	.....
Henriette	J. Shand .....	.....	.....	.....	..	Do.	1	8	.....
		88			28	.....	.....	12	23.3

TOTAL 1462 431 29.5 427 49 11.4
General Total of recoveries on all the above 24 p. c.

To Dr. Davidson, &c.,
&c., Beau Bassin.
Marcus E. BROWN RIGG,
Sanitary Guardian, Plaines Wilhems,
&c., &c., &c.

District of Moka.

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**Report on Cattle Epidemic**

**1879.**

Sanitary Guardian's Office,  
Plaines Wilhems, 2nd December 1879

[REPORT.]

The cattle epidemic broke out in the lower part of Moka District, viz. Pailles, on the 8th of September amongst some cattle belonging to Indians located on "Terrain Germain."

The Sanitary Inspector in charge reports, that on inquiry he ascertained that the owners of the said animals had gone towards the *end* of August on a visit to some of their friends, residing at Pointe aux Sables, where the disease was *raging*. These must, in his opinion, have carried the contagion back with them; for a few day after their return home, their animals fell sick, and 8 out of the 9 first attacked died.

Some 9 days later, a herd of 65 cattle belonging to Mr. Martin were affected, and all died except 5. From that moment it continued to spread all over Moka, but not so rapidly as in other Districts, and there are yet some estates free from it (see Return ). Out of the 1,686 animals affected up to the 30th ultimo, 1,033 have died\*

*None of the aforesaid animals were inoculated.*

MARCUS E. BROWNRIGG,  
Sanitary Guardian—Moka.

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\* It will be observed that the actual numbers given in the *Return* are somewhat in excess of those here stated.

A. D.

**DISTRICT OF MOKA.***RETURN A shewing the number of Cattle which have died of the Prevailing disease*

| Names of Estates, Villages &c.    | Names of Owners.            | Date of<br>out break. |    | Number of cattle<br>before out break. | Number killed by<br>order of Board. | Number died. | Number saved. | REMARKS.                             |
|-----------------------------------|-----------------------------|-----------------------|----|---------------------------------------|-------------------------------------|--------------|---------------|--------------------------------------|
|                                   |                             |                       |    |                                       |                                     |              |               | Treatment<br>followed and<br>Result. |
|                                   |                             | 1879.                 |    |                                       |                                     |              |               |                                      |
| Pailles Village .....             | Germain (Heirs) .....       | Sept.                 | 8  | 9                                     | ..                                  | 8            | 1             |                                      |
| L'Union Estate (Moka) .....       | J. Rousset .....            | do.                   | 15 | 100                                   | ..                                  | 89           | 11            |                                      |
| do. ....                          | Indians & small proprietors | do.                   | 16 | 137                                   | ..                                  | 95           | 42            |                                      |
| Pailles Village .....             | Mr. Martin .....            | do.                   | 17 | 65                                    | ..                                  | 60           | 5             |                                      |
| do. ....                          | Indians & small proprietors | do.                   | 18 | 1                                     | 1                                   |              |               |                                      |
| Agreement (Central Moka) .....    | Indian Laborers .....       | do.                   | 20 | 16                                    | ..                                  | 13           | 3             |                                      |
| Grand Cam (Q. Militaire) .....    | Martial Noël .....          | Oct.                  | 1  | 41                                    | ..                                  | 29           | 12            |                                      |
| Pailles Village .....             | Indians & small proprietors | do.                   | 10 | 2                                     | ..                                  | 1            | 1             |                                      |
| do. ....                          | De La Roche Laperière ....  | do.                   | 13 | 356                                   | ..                                  | 302          | 54            |                                      |
| do. Anse Courtois .....           | Indians &c. ....            | do.                   | 21 | 54                                    | ..                                  | 22           | 32            | 38 per cent<br>saved (nearly)        |
| Alma Estate (Q. Militaire) .....  | E. H. Leclézio.....         | do.                   | 21 | 101                                   | ..                                  | 72           | 29            |                                      |
| Pailles Village .....             | Indians &c. ....            | Nov.                  | 2  | 43                                    | ..                                  | 33           | 10            |                                      |
| Bar-le-Duc (Q. Militaire).....    | Indian Laborers .....       | do.                   | 9  | 83                                    | ..                                  | 49           | 34            |                                      |
| Bonne Veine do. ....              | Préaudet (Heirs).....       | do.                   | 9  | 38                                    | ..                                  | 31           | 7             |                                      |
| Valetta do. ....                  | Indian Laborers .....       | do.                   | 10 | 168                                   | ..                                  | 43           | 125           |                                      |
| Bar-le-Duc do. ....               | Chastellier & Co.....       | do.                   | 10 | 62                                    | ..                                  | 59           | 3             |                                      |
| Alma Estate do. ....              | Indian Laborers .....       | do.                   | 13 | 90                                    | ..                                  | 29           | 61            |                                      |
| Circonstance (Central Moka) ....  | W. Finnis .....             | do.                   | 16 | 54                                    | ..                                  | 50           | 4             |                                      |
| Hamlet (Q. Militaire) .....       | Indians & small proprietors | do.                   | 19 | 44                                    | ..                                  | 43           | 1             |                                      |
| Nouvelle Découverte (R. Baptiste) | Small proprietors .....     | do.                   | 21 | 10                                    | ..                                  | 6            | 4             |                                      |
| Escalier (Rivière Baptiste) ..... | Malézie .....               | do.                   | 21 | 20                                    | ..                                  | 16           | 4             |                                      |
| Côte d'Or (Central Moka) .....    | Desvaux (Brothers) .....    | do.                   | 23 | 70                                    | ..                                  | 2            | 68            |                                      |
| Beau Bois (Riv. Baptiste) .....   | Martial Noël .....          | do.                   | 24 | 117                                   | ..                                  | 3            | 114           |                                      |
| Hermitage (Central Moka) .....    | Ellias Mallac & Co.....     | do.                   | 28 | 47                                    | ..                                  | 20           | 27            |                                      |
|                                   |                             |                       |    | 1728                                  | 1                                   | 1075         | 652           |                                      |

MARCUS E. BROWNRIGG,  
Sanitary Guardian—Moka.

**District of Flacq—S. Section.**  
**Report on Cattle Epidemic**  
**1879.**

Sanitary Guardian's Office,  
Plaines Wilhems, 8th December 1879.

[REPORT.]

The disease first broke out on the Sans Souci estate Flacq (belonging to Mr. Montocchio) on the 19th August (ultimo.)

The contagion is supposed to have been carried to the aforesaid estate by some Indians, who having terminated their engagement in an infected District, had found employment on the Sans Souci estate. Shortly after removing there, together with their animals, cows &c, the disease declared itself, as will be seen by annexed return D. in close proximity to many other Sugar Estates &c., and gradually spread all over the Southern Section ; and between the 19th September and 26th October, out of 2744 cattle 2186 were carried off.

None of the animals attacked were inoculated.

MARCUS E. BROWNRIGG,

Sanitary Guardian S. Section.

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## DISTRICT OF FLACQ.

RETURN D showing number of Cattle which have died of the prevailing disease.

| Names of Estates, Villages &c. | Names of owners.          | Date of<br>out break. | Number of cattle<br>before the outbreak. | Number killed by<br>order of Board. | Number died. | Number saved. | REMARKS.                             |
|--------------------------------|---------------------------|-----------------------|------------------------------------------|-------------------------------------|--------------|---------------|--------------------------------------|
|                                |                           |                       |                                          |                                     |              |               | Treatment<br>followed and<br>result. |
|                                |                           | 1879                  |                                          |                                     |              |               |                                      |
| Sans Souci .....               | Montocchio .....          | Aug. 19               | 120                                      | ..                                  | 101          | 19            | None.                                |
| Belle Rive .....               | Aubin & Co. ....          | Sept. 10              | 135                                      | ..                                  | 122          | 12            | do.                                  |
| Etoile .....                   | Sugar Estate Company .... | do. 12                | 184                                      | ..                                  | 164          | 20            | do.                                  |
| Sebastopol .....               | Montocchio' .....         | do. 19                | 96                                       | ..                                  | 92           | 4             | do.                                  |
| Deep River .....               | Mazery .....              | do. 26                | 210                                      | ..                                  | 206          | 4             | do.                                  |
| Quatre Sœurs .....             | Dubois and Mamet .....    | do. 30                | 59                                       | ..                                  | 55           | 4             | do.                                  |
| Beau Champ .....               | Sornay .....              | Oct. 11               | 321                                      | ..                                  | 256          | 65            | do.                                  |
| Bon Espoir .....               | Pepin .....               | do. 12                | 112                                      | ..                                  | 95           | 17            | do.                                  |
| Clementia .....                | Villecourt .....          | do. 14                | 24                                       | ..                                  | 22           | 2             | do.                                  |
| La Lucie .....                 | Hardy .....               | do. 15                | 38                                       | ..                                  | 28           | 10            | do.                                  |
| Belle Rose .....               | V. Boullé .....           | do. 16                | 44                                       | ..                                  | 34           | 10            | do.                                  |
| Beau Vallon .....              | Fabre .....               | do. 18                | 80                                       | ..                                  | 77           | 3             | do.                                  |
| La Caroline .....              | Lemaite .....             | do. 19                | 90                                       | ..                                  | 69           | 21            | do.                                  |
| St. Julien .....               | Hewetson .....            | do. 24                | 24                                       | ..                                  | 23           | 1             | do.                                  |
| Rich Fund .....                | Arnaud & Co .....         | do. 26                | 133                                      | ..                                  | 102          | 31            | do.                                  |
| Union .....                    | Bourgault .....           | do. —                 | 54                                       | ..                                  | 53           | 1             | do.                                  |
| Rivière Sèches .....           | Indians & small propriors | .... ..               | 752                                      | ..                                  | 500          | 253           |                                      |
| Haut de Flacq .....            | do. ..                    | .... ..               | 215                                      | ..                                  | 135          | 80            |                                      |
| Mare Fongères (R. S.) .....    | do. ..                    | .... ..               | 52                                       | ..                                  | 52           | ..            |                                      |
|                                |                           |                       | 2744                                     | ..                                  | 2186         | 558           | 20.3 per cent saved.                 |

MARCUS E. BROWNRIGG,  
Sanitary Guardian, Flacq, S. Section.

## District of Plaines Wilhems.

## Report on Cattle Epidemic 1879.

Sanitary Guardian's Office,  
Plaines Wilhems, 3rd December 1879.

## [REPORT.]

The first animals affected in the above District were those of Reunion estate, situated at Vacoa and belonging to Mr. G. Robinson, on the 17th June 1879.

There is but very little doubt in my mind that the disease was carried from Black River into Plaines Wilhems, by Indians and others moving their cattle during night time by the mountain passes. These passes in spite of extra surveillance, could not be sufficiently guarded, and although many persons were apprehended, and severely fined, it did not seem to deter others from committing similar breaches of the Sanitary regulations. Once it broke out in such a populous District, it rapidly spread and with violence (as will be seen from the accompanying notes) from estate to estate and place to place between which there was necessarily *daily communication*.

A large number of milch cows have so far escaped; this I fancy is owing to their always being kept in their stalls, and closely watched by their owners, who never allow their cattle to move from their stalls unless they change their residence; in fact if they intend remaining on any estate or locality for any length of time, they invariably build straw huts over their cows, only leaving a small door-way in order to give them food and to cleanse their huts.

The only proprietors who had their cattle inoculated were Messrs. Robinson and Shand, but as will be seen with *no success*, as out of 178 they saved but 12 (see Return B.)

The cattle belonging to the following estates, Highlands, Clairfond, Trianon, Phœnix, and Solferino, were, when the disease broke out, on the pasturage lands of Black River, where I am sorry to have to report mostly all of them died (See Black River Return.)

It will be seen on referring to Return B. annexed, that out of **1,596** animals attacked only 330 were saved, which will show with what great rapidity and violence the disease spread, in spite of the endeavours of proprietors to prevent as much as possible, communication between their different estates.

MARCUS E. BROWNRIGG,  
Sanitary Guardian.

**District of Plaines Wilhems.**  
**RETURN B. SHEWING THE NUMBER OF CATTLE WHICH HAVE DIED OF THE PREVAILING DISEASE.**

| Names of Estates<br>Villages, &a., | Names of Owners.               | Date of out-break. | Number of<br>cattle<br>before out-<br>break. | Number<br>killed by<br>order of<br>Board. | Number<br>died. | Number<br>saved. | Remarks<br>treatment followed. |
|------------------------------------|--------------------------------|--------------------|----------------------------------------------|-------------------------------------------|-----------------|------------------|--------------------------------|
| Reunion .....                      | G. Robinson .....              | June 17th .....    | 100                                          | .....                                     | 96              | 4                | Inoculated.                    |
| Do. ....                           | Indians Laborers .....         | " 17th .....       | 84                                           | .....                                     | 67              | 17               | None.                          |
| Henriette .....                    | Do. ....                       | " 17th .....       | 140                                          | .....                                     | 68              | 72               | [Estate, Moka.                 |
| Chebel .....                       | Mrs. Plaideau .....            | " 22nd .....       | 72                                           | .....                                     | 36              | 36               | " belonging to Agrément        |
| Henriette .....                    | J. Shand .....                 | " 25th .....       | 78                                           | .....                                     | 70              | 8                | Inoculated.                    |
| Solférino .....                    | Ellias Mallac .....            | " 30th .....       | 14                                           | .....                                     | 14              | .....            | None.                          |
| Do. ....                           | Indian Laborers .....          | " 30th .....       | 76                                           | .....                                     | 6               | 70               | "                              |
| Bassin Estate .....                | Mrs. Arnaud .....              | July 1st .....     | 239                                          | .....                                     | 224             | 15               | "                              |
| Chebel .....                       | Lienard .....                  | " 5th .....        | 175                                          | .....                                     | 140             | 35               | "                              |
| Curepipe .....                     | Hon. V. Naz .....              | " 8th .....        | 8                                            | .....                                     | 8               | .....            | "                              |
| Roche Brunes .....                 | Indians .....                  | " 10th .....       | 4                                            | .....                                     | 4               | .....            | "                              |
| Mont-Roche .....                   | Goupille .....                 | " 11th .....       | 70                                           | .....                                     | 52              | 18               | "                              |
| Coromandel Village .....           | Choovee .....                  | " 13th .....       | 1                                            | .....                                     | 1               | .....            | "                              |
| Mill Vale .....                    | Haliday Wilson .....           | " 15th .....       | 35                                           | .....                                     | 33              | 2                | "                              |
| Do. ....                           | Indian Laborers .....          | " 15th .....       | 37                                           | .....                                     | 30              | 7                | "                              |
| Holyrood .....                     | Haliday Wilson .....           | " 15th .....       | 57                                           | .....                                     | 32              | 25               | "                              |
| Vacoo Village .....                | Indians (small proprietors)    | " 15th .....       | 23                                           | .....                                     | 23              | .....            | "                              |
| Stanley .....                      | Hon. C. Antelme .....          | " 18th .....       | 129                                          | .....                                     | 116             | 13               | "                              |
| Palma .....                        | Indians .....                  | " 22nd .....       | 2                                            | .....                                     | 2               | .....            | "                              |
| Beau Songe .....                   | Arnaud .....                   | " 23rd .....       | 118                                          | .....                                     | 113             | 5                | "                              |
| Pierrefond .....                   | Desvaux (on pasturage) .....   | " 25th .....       | 38                                           | .....                                     | 38              | .....            | "                              |
| La Louise .....                    | Marot .....                    | " 27th .....       | 85                                           | .....                                     | 83              | 2                | "                              |
| Plaisance .....                    | Indians .....                  | August 1st .....   | 8                                            | .....                                     | 8               | .....            | "                              |
| Quatre Bornes .....                | Mr. Sératin .....              | Sept. 26th .....   | 3                                            | .....                                     | 2               | 1                | "                              |
|                                    |                                |                    | 1,596                                        | .....                                     | 1,266           | 330              | 20.6 per cent saved (nearly).  |
| Curepipe .....                     | Deer (up to 30th ultimo) ..... | .....              | 342                                          | .....                                     | 342             | .....            |                                |

MARCUS E. BROWNRIGG,  
Sanitary Guardian,—Plaines Wilhems.

**District of Black River.—N. Section.****Report on Cattle Epidemic****1879.**Sanitary Guardian's Office,  
Plaines Wilhems, 8th December 1879.

## [REPORT.]

The disease raged with great violence in the northern section of Black River District from the 16th May to about the beginning of September, during which period out of 9,860 animals 8,149 *died*, and 427 were killed, in order if possible to stay the march of the epidemic. In spite of all the efforts made to check it, the disease continued to gain ground, and as the Black River District is one of the principal cattle runs of the Island, it soon caused terrible havoc amongst the numerous herds.

Inoculation was tried, as well as many other kinds of treatment, viz: burning, blistering and astringent draughts, but all remedies seemed to fail, and the cattle died off in large numbers rapidly, as will be seen by annexed return C. Even the milch cows died in large numbers in comparison with other Districts.

I have been unable to ascertain how the disease originated in Black River District. My first impression was that it might have been carried over by some cattle removed from Roche Bois immediately after the outbreak of the disease at Mad. Jamet's, but I have nothing to offer in support of this impression, as, curious to say, the disease did not appear amongst the herd which had been removed from Roche Bois to Nermont Mr. Loumeau's property until the 22nd May (ultimo) 6 *days after* Mr. Magnac's cattle (Camp Benoit Grand River N.S.) *were affected*.

The contagion soon spread from thence, carried by stray animals, and other agents from herd to herd.

Not only did the General Board of Health do all in their power to prevent communication as well as the different proprietors of estates and cattle owners who regardless of expense took all sorts of precautionary measures, all their endeavours, I am sorry to report, failed in staying the progress of the prevailing disease.

MARCUS E. BROWNRIGG,  
Sanitary Guardian, Black River N. Section.

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## DISTRICT OF BLACK RIVER.

RETURN C. shewing the number of cattle which have died of the prevailing disease.

| Names of Estates<br>Villages &c.,<br>Where situated. | Names of Owners.      | Date of<br>out-break. |       | Number of<br>cattle before<br>out-break. | Number<br>killed. | Number<br>died. | Number<br>saved. | REMARKS<br>Treatment followed and result.  |
|------------------------------------------------------|-----------------------|-----------------------|-------|------------------------------------------|-------------------|-----------------|------------------|--------------------------------------------|
|                                                      |                       | 1879                  |       |                                          |                   |                 |                  |                                            |
| Camp Benoit Grd. River ..                            | Mr. Magnac .....      | 17                    | 1879  | 68                                       | 26                | 42              | ..               | None.                                      |
| Nermont .....                                        | Loumeau .....         | 22                    | May.  | 46                                       | 42                | 4               | ..               | do.                                        |
| Constance .....                                      | Docinthe .....        | 24                    | "     | 33                                       | 5                 | 28              | ..               | do.                                        |
| Malgré tout .....                                    | Barnard .....         | 25                    | "     | 1                                        | ..                | 1               | ..               | do.                                        |
| Bonne affaire .....                                  | do. ....              | —                     | "     | 9                                        | ..                | 8               | 1                | do.                                        |
| do. ....                                             | Jomain .....          | —                     | "     | 4                                        | ..                | 2               | 2                | do.                                        |
| Richelieu .....                                      | Lesage & Co. ....     | 28                    | "     | 63                                       | 20                | 43              | ..               | do.                                        |
| Le Rocher .....                                      | Bourguignon .....     | 29                    | "     | 38                                       | ..                | 38              | ..               | do.                                        |
| Petite Rivière .....                                 | Brémond .....         | 30                    | "     | 83                                       | 77                | 6               | ..               | do.                                        |
| La Concorde .....                                    | Chaperon .....        | —                     | "     | 10                                       | ..                | 10              | ..               | do.                                        |
| do. ....                                             | Langevin .....        | —                     | "     | 4                                        | ..                | 4               | ..               | do.                                        |
| Albion .....                                         | C. Nayle & Co. ....   | —                     | "     | 270                                      | ..                | 253             | 17               | do.                                        |
| Petite Rivière .....                                 | G. Pougnet .....      | 1                     | June, | 35                                       | ..                | 35              | ..               | do.                                        |
| do. ....                                             | Mrs. Wilson .....     | 8                     | "     | 108                                      | 102               | 6               | ..               | do.                                        |
| Gros Cailloux do. ....                               | Merandon & Co. ....   | 9                     | "     | 93                                       | 88                | 5               | ..               | do.                                        |
| Pointe aux Sables .....                              | Pougnet .....         | 19                    | "     | 43                                       | 40                | 3               | ..               | do.                                        |
| Médecine .....                                       | Mrs. Kœnig .....      | —                     | "     | 155                                      | ..                | 123             | 32               | Inoculated.                                |
| Clarence .....                                       | Geffroy .....         | 20                    | "     | 408                                      | ..                | 248             | 160              | do.                                        |
| Bosquet .....                                        | Bourguignon .....     | 24                    | "     | 36                                       | ..                | 36              | ..               | None.                                      |
| Belle Ile .....                                      | A. Boullé .....       | 30                    | "     | 134                                      | ..                | 129             | 5                | do.                                        |
| Plaine St. Pierre .....                              | Mr. Arnarsalon .....  | —                     | "     | 27                                       | 27                | ..              | ..               | do.                                        |
| Hermitage .....                                      | Goupille .....        | —                     | "     | 60                                       | ..                | 56              | 4                | do.                                        |
| La Chaumière .....                                   | Hon'ble Antelme ..... | —                     | "     | 58                                       | ..                | 51              | 7                | do.                                        |
| Eau bonne (Bambous) .....                            | Nariac .....          | 4                     | July. | 81                                       | ..                | 69              | 12               | Inoculated.                                |
| St. Sauveur (do.) .....                              | Martial Noël .....    | 6                     | "     | 160                                      | ..                | 154             | 6                | None, these cattle belonging to Mon Desert |
| Bon Ayle (Tamarin) .....                             | Nariac .....          | 9                     | "     | 98                                       | ..                | 78              | 20               | Inoculated. [Estate Moka on pasturage at   |
| La Mecque .....                                      | Kœnig .....           | —                     | "     | 185                                      | ..                | 129             | 56               | [St. Sauveur.                              |
| Magenta .....                                        | Carcezac .....        | 10                    | "     | 917                                      | ..                | 845             | 72               | do.                                        |
| Mon Repos .....                                      | Noziac .....          | 15                    | "     | 72                                       | ..                | 70              | 2                | None.                                      |
| Tamarin .....                                        | Lagesse .....         | 16                    | "     | 364                                      | ..                | 325             | 39               | do.                                        |

|                               |                             |    |      |     |      |      |                                             |                                                              |
|-------------------------------|-----------------------------|----|------|-----|------|------|---------------------------------------------|--------------------------------------------------------------|
| Eden .....                    | Hily (D) .....              | 16 | 58   | ..  | 57   | 1    | do.                                         | on pasturage at Tamarin belonging [to Côte d'Or (Moka.)      |
| La Ferme .....                | Desvaux .....               | 17 | 42   | ..  | 85   | 7    | do.                                         |                                                              |
| Palmyre .....                 | H. Vigoureux .....          | 18 | 1132 | ..  | 996  | 136  | do.                                         |                                                              |
| Wolmar .....                  | E. Trouchet .....           | 21 | 566  | ..  | 557  | 9    | Inoculated.                                 |                                                              |
| Clarence .....                | J. Langlois .....           | 22 | 233  | ..  | 216  | 17   | None.                                       |                                                              |
| Anna .....                    | V. Geoffroy .....           | 26 | 80   | ..  | 65   | 15   | Inoculated.                                 |                                                              |
|                               | Elysée Nayl .....           | 28 | 130  | ..  | 108  | 22   | None.                                       |                                                              |
|                               | Elias Mallac .....          | 28 | 86   | ..  | 86   | ..   | do.                                         | on pasturage at Bon Asyle belonging to Solferino Est. Vacoa. |
| Mon Désir .....               | Miss Delanny .....          | 1  | 298  | ..  | 245  | 53   | Inoculated.                                 |                                                              |
| Riv. Dragon & Belle Vue ..... | R. de Belloguet .....       | 11 | 65   | ..  | 63   | 2    | do.                                         |                                                              |
| Casèla .....                  | Geffroy .....               | 16 | 55   | ..  | 25   | 30   | do.                                         |                                                              |
| Yémen .....                   | Rougé & Co. ....            | 25 | 866  | ..  | 745  | 121  | None.                                       |                                                              |
| Barrachois .....              | Gautier .....               | 25 | 86   | ..  | 67   | 19   | do.                                         |                                                              |
| Yéman Estate .....            | Victor & Co. ....           | —  | 51   | ..  | 46   | 5    | do.                                         | (on pasturage belonging to) Clairfond Pls. Wilhems.          |
| do. ....                      | H. Portal & Co. ....        | —  | 88   | ..  | 85   | 3    | do.                                         | St Hubert, Gd. Port.                                         |
| do. ....                      | Démiey .....                | —  | 66   | ..  | 63   | 3    | do.                                         | Phoenix.                                                     |
| do. ....                      | Belzim & Harel .....        | —  | 85   | ..  | 83   | 2    | do.                                         | Trianon.                                                     |
| Rivière Noire .....           | Mme. Genève .....           | 6  | 316  | ..  | 297  | 19   | do.                                         |                                                              |
| do. ....                      | R. de Chazal .....          | —  | 27   | ..  | 27   | ..   | do.                                         | St Marie (Savanne.)                                          |
| Mon Vallon (Clarence) .....   | Elias Mallac .....          | —  | 80   | ..  | 80   | ..   | do.                                         | Solferino, Vacoa.                                            |
| do. ....                      | Ceylon Company .....        | —  | 13   | ..  | 12   | 1    | do.                                         | do.                                                          |
| do. ....                      | Mallac .....                | —  | 34   | ..  | 31   | 3    | do.                                         | do.                                                          |
| do. ....                      | Telfair .....               | —  | 107  | ..  | 103  | 4    | do.                                         | Bon Air, Moka.                                               |
| Bois Chéri .....              | Vigier Latour .....         | —  | 28   | ..  | 28   | ..   | do.                                         | do.                                                          |
| Mon Désir .....               | Montocchio .....            | —  | 50   | ..  | 39   | 11   | do.                                         | Sans Souci, Flacq.                                           |
| Bon Asyle .....               | De Senneville .....         | —  | 58   | ..  | 13   | 45   | do.                                         | do.                                                          |
| do. ....                      | St. Félix .....             | .. | 22   | ..  | 13   | 9    | Pasturage belonging to Mrs. de St Felix Sa- | Fontenelle, Flacq. [vanne.                                   |
| do. ....                      | Fontenelle .....            | .. | 36   | ..  | 22   | 14   | do.                                         | La Lucie, Rivière Sèche.                                     |
| do. ....                      | F. Lagesse .....            | .. | 36   | ..  | 36   | ..   | do.                                         |                                                              |
| Pointe aux Sables .....       | Indians (small proprietors) | .. | 29   | ..  | 20   | 9    | do.                                         |                                                              |
| Petite Rivière .....          | do.                         | .. | 240  | ..  | 193  | 47   | do.                                         |                                                              |
| Bambous .....                 | do.                         | .. | 344  | ..  | 263  | 81   | do.                                         |                                                              |
| Hermitage .....               | do.                         | .. | 470  | ..  | 378  | 92   | do.                                         |                                                              |
| Albion .....                  | do.                         | .. | 56   | ..  | 42   | 14   | do.                                         |                                                              |
| Clarence .....                | do.                         | .. | 62   | ..  | 52   | 10   | do.                                         |                                                              |
| Tamarin .....                 | do.                         | .. | 83   | ..  | 61   | 22   | do.                                         |                                                              |
| Bon Asyle .....               | do.                         | .. | 15   | ..  | 10   | 5    | do.                                         |                                                              |
| Black River .....             | do.                         | .. | 104  | ..  | 86   | 18   | do.                                         |                                                              |
|                               |                             |    | 9860 | 427 | 8149 | 1284 |                                             | Mostly Cows.                                                 |

MARCUS E. BROWNRIGG,

Sanitary Guardian, Black River S. Section.



**Annexure (K).****Précis of the Answers obtained to the Questions.**

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A series of questions having been drawn up by the President and Secretary was approved of by the Commission and circulated among the Planters, Veterinary Surgeons, and Owners of Cattle who were supposed likely to be able to assist the Commission by their knowledge and experience. Although a large number of copies of the questions were thus circulated, only about forty replies have been received. Instead of giving these in full, we have thought it better to summarise the opinions and observations thus obtained. When the answers embodied information perfectly in harmony with common experience, it has not been thought necessary to reproduce them. Thus, in regard to the *Symptoms* of the Cattle Plague, the observations were in most instances so much alike, that only a few of the descriptions of the disease have been extracted, and these have been condensed as much as possible.

The information obtained from the replies is summarised under the following heads.

1st. The mode in which the disease was introduced in individual instances.

2nd. Mode of propagation generally.

3rd. Remarks on the circumstances tending to affect the spread or fatality of the disease.

4th. Symptoms of the plague.

5th. Period of incubation.

6th. Duration of the disease.

7th. Effects of inoculation.

8th. Effects of special modes of treatment.

9th. The results of isolation.]

10th. The proportion of recoveries to deaths.

11th. Instances of non-infection.

12th. Recommendations.

*The Mode in which the disease was introduced  
in individual instances.*

|                     |   |                                     |
|---------------------|---|-------------------------------------|
| Infection           | { | M.M. de Rosnay, Belle-Vue (Pilot).  |
|                     |   | J. Constantin, Union.               |
|                     |   | Guibert, Bois Chéri.                |
|                     |   | Rochecouste, Beau-Vallon.           |
|                     |   | Vallet, Joli Bois.                  |
|                     |   | F. Antelme, Mon Trésor.             |
|                     |   | Lamarque, Constance.                |
|                     |   | Le Maire, Caroline.                 |
|                     |   | Margéot, Belle-Rive.                |
|                     |   | Pilot, Belle-Rose.                  |
|                     |   | Mme. Hardoin, Bel-Air.              |
| Mr. Galéa, Valetta. |   |                                     |
| Contagion           | { | M.M. Mauvis, Union                  |
|                     |   | Rousset, Union [Noire.]             |
|                     |   | Vally, Belle-Vue and Petite Rivière |

Currents of air.—“The nearest point of infection being three miles distant.”—*Anonymous.*

Infection.—The nearest affected estate being two miles distant. Mr. Kœnig, Virginia.

Infection.—The nearest affected place three miles off.  
Mr. Leclezio, Mapou.

Infection or contagion.—From Mare d'Albert Estate which is near. Mr. Mollières, New Grove.

Infection.—“The nearest herd being a mile distant.  
Mr. Chéron.

By the agency of Indians. Mr. Cayeux, Combo.

By means of Cape flies and martins.  
Mr. Suzor, Le Bosquet.

By the wind, which blew from an infected locality seven miles distant. Mr. Cloupet, Mon Désert.

By the proximity of infected herds by which we were surrounded. Mr. Vigoureux, La Ferme.

*The Mode in which the disease is propagated generally,*

All without exception ascribe the spread of the disease either to contagion or infection, or to both causes. A few, with Mr. Cayeux of Combo Estate, give it as their belief that the *contagium* or poisonous principle has been in most

instances conveyed from one estate to another, and from herd to herd, by the agency of human beings ; while others think, with Mr. Gautier of Barachois, that Cape flies play an important rôle in conveying the disease from the affected to the healthy cattle.

*Remarks on the circumstances supposed to affect the fatality and spread of the plague.*

—  
 “Milch cows were least predisposed to suffer from the reigning malady.” Mr. Montille, La Rosa.

“I have no reason to believe that altitude, atmospheric phenomena, food, or water exercise any influence upon the spread of the disease. Mr. de Rochecouste, Beau Vallon.

“The mortality was least among cows kept in houses.  
 Anonymus.

“The epizootie affected the animals kept in the fields and those in houses in the same proportion.

Mr. Kœnig, Virginia.

“I think the disease was as fatal along the coast as in the interior. Mr. Mollières, New Grove.

“The animals in the fields and those kept in-doors were attacked on the same day, but the mortality among those kept in-doors was greater than amongst those in the fields. Mr. Gautier, Barachois.

“The mortality was greatest among cows and heifers. The epizootie raged most violently along the coast.

Mr. de la Butte, Grand-case Noyale.

“The mortality was equally great near the sea and in the interior. The cattle were in bad condition owing to drought and the consequent badness of the water when the disease appeared. Mme Genève, Rivière Noir.

“The draught cattle were more disposed to the plague and the mortality among them greater than in the case of cows. Mme. Hardoin, Bel Air.

“Cattle from Madagascar were most liable to the disease. Mr. Leconte, Ville Valio.

“The disease raged with much greater violence upon this herd than upon animals kept in stables, and Madagascar bullocks suffered most. Mr. Darnay.

*Symptoms of the Cattle Plague.*

—

*First stage.*—The animals appeared dull, the coat was staring; there was loss of appetite and occasionally thirst; running from the nostrils; the eye dull and discharging—the discharge running down and collecting as a whitish secretion on the cheeks.

*Second stage.*—The same symptoms, with moaning, weakness, grinding of the teeth, and diarrhœa with black motions.

*Third stage.*—The same symptoms continue, with shivering and tremor of all the members.

When recovery takes place, the appetite improves; the eye becomes more lively, the strength returns, and an eruption appears upon the body in the form of small vesicles which dry up and lead to the falling off of the hair which gives a peculiar appearance to the skin of convalescing animals. The animals that recover generally do so in from 10 to 15 days. Mr. de Rosnay, Belle Vue (Pilot.)

*First stage.*—The animals become dull, and there is running from nostrils and eyes.

*Second stage.*—Loss of appetite, diarrhœa, purulen discharge from nostrils.

*Third stage.*—The same symptoms.

Mr. Suzor, Le Bosquet.

*First stage.*—Generally diarrhœa and dulness, also continual grinding of the teeth.

*Second stage.*—Staring of the coat; fœtid diarrhœa; dysentery—often violent; absolute abstention from food.

*Third stage.*—The same symptoms only more developed; thick discharge from the nostrils.

Mr. de Rochecouste, Beau Vallon.

The first symptoms observed were injection of and discharge from the eyes, followed by tremors, and finally a grinding of the teeth, staring coat, and severe diarrhœa. The affected animals refuse food. Mr. Vallet, Joli Bois.

The disease usually commenced with cough, mucous discharge from the nose, shivering and tremors of the limbs. The breath was generally offensive. The animal hung its head and its ears drooped. There was violent diarrhœa and rapid emaciation. When the animal lay down, it could only with difficulty get up again. Some were constipated, others passed blood.

The diarrhœa in the last stage becomes worse, the animal is unable to rise up and seems to suffer great pain in the belly; the mucous discharge from the nostrils increases. The animal refuses to eat. Some drank much, others would not drink any thing.

Mr. de la Butte, Grand Case Noyale.

*First stage.*—Running from the nose and diarrhœa.

*Second stage.*—The animals lay down, and were unable to rise.

*Third stage.*—The same symptoms.

Mr. Vally, Belle Vue & Petit Rivière Noir.

*The period of incubation.*

—

Four to six days. Mr. de Rosnay, Belle Vue, (Pilot.)

From thirteen to eighteen days. Anonymous.

The first sign of the disease in my herd appeared on the 9th of June, and on the 18th all were affected.

Mr Mollières, New Grove.

“The herds on Yemen and Barachois Estates took the disease eight days after a diseased animal had traversed these properties. Mr. Gautier, Barachois.

“Eight days.” Mr. Cheron.

“Ten to eleven days.” Mme. Genève, Rivière Noir.

“About a week.” Mr. Leconte, Ville Valio.

I believe that the period of incubation extends from seven to ten days. Mr. Vigoureux, La Ferme.

*The duration of the disease*

—

“Six to ten days.” Mr. de Rosnay, Belle Vue (Pitot.)

“Three to four days.” Mr. Suzor, Le Bosquet.

“Eight to twelve days.” Mr. Guibert, Bois Chéri.

“A few hours to eight days.”

Mr. de Rochecouste, Beau Vallon.

“Two to three days.” Mr. de Montille, La Rosa

"Generally died the same day that they look ill, sometimes next day." Mr. Leclézio, Mapou.

"Two hours to eight days."

Mr. de la Butte, Grand case Noyal.

"From a few hours to six or seven days."

Mme. Genève, Rivière Noire.

"Three to eight days." Mme Hardoin, Bel Air.

"Two to eight days." Mr. Fd. Antelme, Mon Tresor.

"Three days." Mr. Vallet, Joli Bois.

"Twenty four to thirty six hours."

Mr. Leconte, Ville Valio.

"One to eight days." Mr. Lamarque, Constance.

"Four to five days." Mr. Mauvis, Union.

"One to four days." Mr. Mazery.

"One to eight days." Mr. Margéot, Belle Rive.

"Three to four days."

Mr. Pilot, Belle Rose & Mr. Rousset Union.

"Five to six days." Mr. Pepin, Union Park.

"Two or three days, other cases were foudroyants."

Mr. Vally, Belle Vue & Petite Rivière Noire.

"Some died suddenly others after many days."

Mr. Cloupet Mon Desert.

"Sometimes a few hours, sometimes four or five days."

Mr. Vigouraux, La Ferme.

*The effects of inoculation.*

On the Beau Vallon estate the herd was inoculated before the disease had declared itself; but the proprietor thinks it possible that the infection had already been introduced. In answer to the question "what were the results of the operation" the reply is "nul."

Mr. de Rochecouste, Beau Vallon.

On New Grove estate, 44 were inoculated by inserting a small piece of lung near the root of the tail. Fifteen of these showed no symptoms of the disease when the operation was performed. Of those operated upon, 28 were saved and are now working. Mr. Mollières, New Grove.

On Clarence estate the herd was inoculated after the disease had appeared, and 155 out of 404 bullocks were saved. Mr. Boucherville, Clarence.

I only resolved to inoculate my cattle when it was too late; of 15 animals inoculated only 1 died. I have also inoculated cattle which were already slightly affected. The success is greater when the operation is performed on healthy animals. Mr. de la Butte, Grand case Noyale.

I tried inoculation of mucus from the nose without success. Mme. Genève, Rivière Noire.

Thirty were inoculated without success.

Mr. Lamarque, Constance.

*The effects of special modes of treatment.*

—

I tried simples administered by the Indians without success. Mr. Guibert, Bois Cheri.

I tried different modes of treatment without any good result. "Je dois dire cependant que Mr Gentrac, lui même a essayé et a échoué complètement."

Mr. Rochecouste, Beau Vallon.

I tried phenol given in a decoction of "*belle-de-nuit*" and I obtained the result which would follow the application of a cautery to a wooden leg.

Mr. F. Antelme, Mon Tresor.

When the disease appeared in my herd, I applied blisters to the region of the lungs, and administered a bolus and purgative injection by advice of Dr..... but no good resulted. I tried Mr Gautier's treatment which consists of common salt and carbon obtained from the burning of a certain bark. Out of 20 subjected to this treatment, 9 recovered. Mr. de la Butte, Grand case Noyale.

The animals that recovered were not subjected to any special treatment with the exception of two which were bled and treated with the actual cautery.

Mme Genève, Rivière Noire.

I tried setons without success. Mr. Dumontet, Ferney.

All sorts of tisanes and medicines were tried without success. Mr. Lamarque, Constance.

I attempted to make the cattle inspire the gaze nitrique, but found it impossible. Mr. Mauvis, Union.

I tried bismuth, laudanum and quinine without effect.

Mr. Mazery, Deep River.

I tried the actual cautery, coal tar, chloride of sodium in water without success. Mr. Rousset, Union.

I used carbonate of soda and common salt without effect. Mr. Pepin, Union Park.

*The effects of Isolation in preventing the spread of the Cattle plague.*

—

Some of the cows belonging to Indians on Le Bosquet estate escaped, while all the bullocks belonging to the proprietor perished. Mr. Suzor, Le Bosquet.

I know no instance of isolation succeeding.

Mr. Guibert, Bois Cheri.

I do not know of any instance in which isolation has succeeded in preventing the disease or retarding its spread. I placed an effective "cordon sanitaire" on my herd, and I am convinced that no communication took place, yet my herd caught the disease. The nearest source of infection was about a mile distant.

Mr. de Rochecouste, Beau Vallon.

A single cow kept entirely separate from the others escaped. Mr. Kœnig, Virginia.

*The proportion of recoveries to deaths.*

—

All the bullocks (74) died ; 3 cows kept in-doors recovered. Mr. Suzor, Le Bosquet.

Out of 27 animals, 21 died, 1 escaped the disease, and 6 recovered. Mr. Constantin, Union.

10 per cent. Mr. Guibert, Bois Chéri.

7.61 per cent. Mr. Rochecouste, Beau Vallon.

Only one animal out of 16 recovered and that one belonged to an Indian on the estate. Mr. Montille, La Rosa.

Six out of twenty three recovered.

Mr. F. Antelme, Mon Trésor.

Two out of one hundred and fifty five. Anonymous.

Two out of seventy one recovered.

Mr. Kœnig, Virginia.

Exactly a third. Mr. Leclezio, Mapou.

Twenty eight were saved out of forty four by inoculation. Mr. Mollières, New Grove.

Five recovered out of fifty five.

Mr. Rouillard, Mon Loisir.

I saved 155 out of 403 by means of inoculation.

Mr. Boucherville, Clarence.

25 per cent. Mr. Gautier, Barachois.

I lost 25 per cent of my herd.

M. de la Butte, Grand' Case Noyal.

I saved two out of twenty seven. Mr. Chéron.

Twelve out of my herd of fifty recovered.

Mr. Cayeux, Combo

Eight in forty eight. Mr. Mauvis, Union.

6 per cent, Mme. Genève, Rivière Noire.

14 per cent. Mr. Le Maire, Caroline.

6.15 per cent. Mr. Margeot, Belle Rive.

One sixth. Mme. Hardouin, Bel Air.

One fifth. Mme. Pilot, Belle Rose.

Ten in eighty six. Mr. Dumontet, Ferney.

Two out of ninety four, and these two happened to escape each with a ball in the eye while the rest were being killed. Mr. Leconte, Ville Valio.

One in a hundred and thirty three.

Mr. Lamarque, Constance.

One in seventy. Mr. Pepin, Union Park.

Ten out of two hundred and seventy eight.

Mr. Vally, Belle Vue and Petite Riv. Noire.

7 per cent. Mr. Cloupet, Mon Désert.

11 per cent. Mr. Vigoureux, La Ferme.

7 per cent, Mr. Darnay.

22 per cent of bullocks and 17 per cent of cows.

Mr. Aynaud, Riche Fund.

*Instances of non-infection.*

A few cows on Le Bosquet estate belonging to the Indians escaped, probably owing to isolation.

Mr. Suzor, Le Bosquet.

Out of 27 animals, 1 proved insusceptible to the disease. Mr. Constantin, Union.

The proprietor of Beau Vallon estate attributes the immunity of some of his cattle to their refractory constitution, but the number that escaped is not given.

Mr. Rochecouste, Beau Vallon.

One cow escaped the disease, and this was due to isolation. Mr. Kœnig, Virginia.

Four of my animals escaped the disease. I do not know the reason. Mr. Mazry, Deep River.

Only one escaped the infection out of ninety five. I do not know the reason. Mr. Le Maire, Caroline.

Only five out of two hundred and forty two escaped. They were not isolated. Mr. Margeot, Belle Rive.

All my animals, excepting two cows, were attacked.  
Mr. Aynaud, Rich Fund.

*Recommendations.*

Perfect isolation of infected herds.

Mr. de Rosnay, Belle Vue (Pilot.)

Quarantine: if the animals come from an infected region they should be slaughtered.

Mr. Rochecouste, Beau Vallon.

A careful examination of all animals introduced into the Colony. Mr. Kœnig, Virginia.

The introduction of cattle from Aden ought to be prevented. I believe that the epizootie was introduced from that country. The Veterinary Surgeons should be more careful in their examinations of the animals brought into the Colony. Mr. Pilot, Belle Rose.

Inoculation. Mr. Mollières, New Grove.

If at the first appearance of the disease the affected herd or herds had been slaughtered, and a strict cordon sanitaire established, the disease might have been arrested.

Mr. de la Butte, Grand case Noyale.

Literie and other refuse that has been used in connection with diseased cattle should be burned.

Mr. Cayeux, Combo.

Careful inspection of the cattle before they are landed by a Veterinary Surgeon. If any doubt arises as to their condition, the Captain should be required to furnish the Veterinary Surgeon with such evidence as will satisfy him as to the health of the animals during the voyage, and the exemption from disease of the place from which they were shipped. Quarantine should be enforced when necessary.

Mme Genève, Rivière Noire.

Careful inspection of animals before landing. Quarantine regulations, and the destruction of infected animals.  
Mr. Lecoute, Ville Valio.

Quarantine. Mr. Mauvis, Union.

Prevent in future the importation of cattle.  
Mr. Chéron.

My idea is that if at the first out-break of the disease all the cattle within a radius of three miles had been gathered together into the centre of the infection, the spread of the contagion would have been prevented.

Mr. Vally, Belle Vue & Petite Rivière Noire.

Careful inspection of cattle imported, and preventing for years the sale of bones coming from abroad.

Mr. Vigoureux, La Ferme.

Rigorous quarantine; and should the disease appear in the Colony, the immediate destruction not only of the diseased cattle but of all animals within a radius of 2 or 3 miles. Mr. Aynaud, Rich Fund.

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...of the ... and the ...

...the ...

**Annexure (L.)**

**RETURN OF, CATTLE SLAUGHTERED AT THE ABATTOIR, ROCHEBOIS.**

**MARCH, APRIL AND MAY 1879.**







## Annexure (M.)

## Reports by the Veterinary Surgeons.

*Examination of Mr. Martial V. S., Nov. 12, 1879*

Mr. Martial states that he performed one autopsy at Flacq on an animal dying from the reigning disease, and has given in writing the lesions observed.

From what he knows of the disease, and from the pathological appearances observed in that case, he is satisfied that the reigning epizootie is the same disease as that which is termed the "Rinderpest" in England.

He gives it as his opinion that the disease may have arisen spontaneously in this Colony, but he thinks it more probable that it has been introduced from abroad.

The period of incubation he believes is from 3 to 8 days ; but in stating this he wishes it to be understood that he is guided by the opinion of the best authorities in Europe, and that he has had no opportunity of testing the point.

In order to prevent the reintroduction of the disease into the Colony, he suggests that the vessels that have been less than twelve days at sea should be compelled to do a quarantine to complete that term. And in cases where any considerable number of cattle have died during the voyage, a quarantine of observation ought also to be enforced.

If the disease has once appeared in the Colony he is averse to the slaughter of the whole herd first attacked, or those afterwards affected. He would simply advise the diseased animals to be killed, and establish a *cordon sanitaire* on the affected locality.

*Report of an Autopsy made on an animal that died from the epizootie at Flacq by Mr. Martial.*

The lining membrane of the respiratory track presented signs of congestion ; the edges of the glottis was considerably swollen. Emphysema of the lungs was also present.

The fourth, or true digestive stomach (the abomasum) was diseased : Its mucous membrane was intensely red and covered with mucus. The mucous membrane was easily removed from the sub-mucous tissue. In addition to the redness, which was most intense in the pyloric region, the mucous membrane at this part presented circular patches of a claret colour.

With regard to the mucous membrane of the small and large intestines it was more or less inflamed throughout.

The gall bladder was full of bile.

Signed : J. MARTIAL, M. R. C. V. S.

Port Louis,

November 13, 1879.

*Statement of post-mortem appearances by Mr Gautray, V. S.*

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*The Nervous System.*

Brain and membranes ; Cord and membranes.

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Nothing particular in the cord, but the membranes present slight traces of inflammation ; in general the brain is the seat of inflammation and presents some small clots of blood between the membranes and the brain.

Peripheral Nerves, not observed.

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*Muscular System.*

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The Muscular System presents nothing particular, except that decomposition takes place more quickly than in animals in a healthy condition.

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Post-Mortem rigidity, discoloration, loss of consistence, ecchymoses.

I have observed no difference in these respects, but have sometimes met with a few ecchymoses on the walls of the heart.

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*The Respiratory System.*

Nose ; the nasal membrane is red and inflamed.

Treachea ; is also red and inflamed.

Bronchi ; are also inflamed and present frothy mucosity.

Lungs ; are slightly inflamed.

Pleura ; nothing particular.

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*Digestive System.*

Mouth and throat : the mucous membrane is inflamed, and the throat also.

Œsophagus, is inflamed.

Rumen ; often contains much undigested food, and is inflamed and presents some ecchymoses.

Reticulum ; nothing particular.

Omasum ; the food it contains is hard, and the internal membrane is detached with the food ; ecchymotic stains are observed.

Abomasum ; is the seat of much inflammation, it is red and sometimes mortified.

Small intestines ; are inflamed.

Large intestines ; presents sometimes a little inflammation.

Mesenteric Glands ; nothing particular.

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*Other Abdominal Viscera.*

Spleen ; nothing to be remarked.

Liver and Gall Bladder ; The latter sometimes inflamed and contains more bile than in the normal state.

Kidneys ; Sometimes inflamed.

Peritoneum ; presents nothing remarkable.

*Generative System.*

Uterus ; always inflamed and the fœtus is often thrown out.

Bladder ; is also inflamed and contains urine of a red colour and of bad smell.

Vulva ; is red, inflamed, and swollen.

Udder ; Diminished and no milk is given.

Heart and Pericardium ; the heart is of the ordinary size and sometimes presents ecchymoses in its walls. Nothing to be noticed about pericardium.

*Treatment.*

Have you practised inoculation ? Yes.

In how many instances ? 7 or 8 times.

By what method ? Different methods.

With what results ? Unsuccessfully.

State any other method of treatment which you have tried or seen tried, and say what results were obtained.

I tried different methods, and have seen other methods tried by others without any success.

In what manner in your opinion is the disease propagated ?

By displacement of animals ; by contagion carried by the air ; by persons who have been with infected cattle ; and also by birds, dogs, hides from abroad, and by the wool of sheep introduced into the Colony.

If in your opinion it can be diffused through the medium of the air, to what distance can it be carried ?

It is not certainly known to what distance the disease can be carried by the air.

What, in your opinion, has been the common means of its spread from one estate to another in Mauritius ?

By contagion, through the disease having been carried by persons who have attended infected animals, by the air, and by infected beasts themselves.

Relate any instances that have come under your observation illustrating the way in which it became diffused.

Many instances have come to my knowledge in which the disease has been transmitted in one or other of the ways mentioned above.

Can you suggest any measures for preventing its spread, in addition those that have been adopted and carried out here during the epizootie ?

The means employed here are those generally adopted in Europe, but they should be strictly enforced and carried out, especially at the beginning of the disease.

Have other animals within your knowledge been affected by the epizootie ?

Yes, goats, and I have heard deer also.

L. GAUTRAY, v. s.

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#### MEMO.

For the information of His Excellency the Governor.

1o. First stage of the disease characterized by : Dullness, anorexia, muzzle dry, hair erect, and slight increase of saliva.

2o. Second stage ; Prostration ; movements slow, tries to graze but without effect ; lies down and gets up alternately ; crupes with difficulty ; grinding of the teeth ; tremor of the muscles of the shoulder and of the hind legs ; occasional cough ; eyes sunk in the orbits and watery, lacrymal secretion *sui generis* attracting flies and other insects ; viscid mucosity flowing from the muzzle mixing with lacrymal secretion ; distortion of spine curved upwards.

3o. Third Stage ; aggravation of symptoms in second stage with bilious diarrhœa—sometimes bloody, with stertorous breathing when death begins.

Incubation.—From six to seven days on an average, but may be shorter or longer according to the virulence of the disease, and the degree of exposure to contamination.

*Pathologic signs.*

Brain.—Extravasation of blood between dura mater and pia mater. Substance of the brain itself is spotted in different parts with slight extravasations of blood. Ventricles full of serosity.

Spinal chord presents same appearances as brain ; and those lesions of the brain and chord would explain (by pressure on the pneumogastries) the anorexia, indigestion and difficulty of breathing. Pressure on other centres of the brain and chord would explain the unsteadiness on legs and difficulty of locomotion and the prostration in some cases. Lesions of the sympathetic system, which has to do with nutrition, explains diarrhœa and inflammation of the mucous membrane of the bowels.

In the digestive system the only organs demanding attention are :—the first stomach which is generally gorged with food and sometimes shows ecchymotic patches. Second and third stomachs contain undigested food and their epithelium is easily torn off. Fourth stomach is that which shows the true signs of the disease, its lining mucous membrane is inflamed and of port-wine color, and covered with small abrasions.

Large and small intestines, contain little if any food and show no trace of inflammation ; in the last portion of the small intestines small ecchymoses are sometimes met with here and there ; the rectum itself is much congested and shows bloody striae.

Liver, spleen, kidneys, show nothing special ; gall bladder is generally gorged with bile. Lungs and heart show nothing worth noticing.\*

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*Copy of Mr. Bradshaw's Report to General Board of Health.*

Port Louis, June 18th 1879.

To

The President,  
General Board of Health,

Sir,

With reference to your Memo : No. C1320 of the 16th instant, I have the honor to submit to you the results of my observations on the reigning epizootie, and in doing so, I have strictly adhered to your request to be as brief as is consistent with the information required.

*Rinderpest.*—The name by which this disease is known in England—comes on very insidiously, and often makes

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\* I understand that this memo was written by a Veterinary Surgeon, but I do not know the author's name, and I have found some difficulty in understanding the meaning of several passages.

considerable progress before any symptoms are observed, but when these become apparent, they almost invariably run their course toward a fatal termination in from 2 to 8 days. At the onset, that is to say when external appearances are sufficiently conclusive to establish the existence of the disease, the affected animal separates itself from the herd, and with its head hanging down, lopping ears, arched back, staring coat, and an anxious look about the countenance, yet not appearing to suffer much pain, it stands almost motionless for an hour at a time. There is great disinclination to move, and when walking, a great weakness of the muscles, especially those of the hind extremities, is very perceptible. Occasional tremors are also present.

The appetite at this early stage is often not greatly impaired, and rumination is carried on with almost its habitual regularity. As the disease progresses great thirst is experienced, although very little is drunk at a time, in consequence no doubt of pain on deglutition. A short dry cough now sets in and there is a continual flow of saliva from the mouth; the eyes are intolerant to light, and the increased lachrymal secretion eventually assumes a mucopurulent form, which, from its viscosity, rapidly adheres to the lids and surrounding skin. Conjointly with this running from the eyes, an ichorous discharge is poured forth from each nostril.

The pulse, which from the first is quick and weak, now becomes almost indistinct, and there is great difficulty in breathing caused by laryngeal inflammation. Hæmaturia is at times detected, which, with a violent diarrhœa, speedily brings the poor animals sufferings to a fatal termination.

*Rinderpest* is highly infectious. European writers allow 8 days for its incubation. This acknowledged theory at home does not apply to the epizootic as it shows itself in this Colony; for I am fully convinced, in some apparently spontaneous cases, it remains latent in the system for a much longer period. I have remarked in my many pathological researches of late that what I consider the first anatomical lesions demonstrative of the disease—the ecchymoses and brown or black spots of the lining membrane of the 4th stomach—may exist for 15 days, or even longer, ere any obvious external symptoms declare themselves in the living subject.

#### Post-Mortem appearances :

1st or latent stage.—Small black or brown patches on the mucous membrane of 4th stomach are the only pathological appearances to be detected throughout the body.

2nd Stage: this is meant to denote that period when the disease has attained its full development.

The air passages, from the larynx down to the bronchi, are inflamed throughout; the vessels of the attached surface of the mucous membrane being engorged with blood; the lungs are generally free from all inflammation although greatly distended from emphysema.

The heart is to all appearances healthy, a few ecchymotic spots are sometimes found on the walls of its cavities.

The circulating organs contain a watery decomposed black blood.

On opening the abdomen, the omentum presents a highly red colored appearance, and there are dark patches of an inflammatory character distributed at intervals over the peritoneum, more particularly on its abdominal reflection.

The spleen, kidneys, and liver offer nothing remarkable; the gall bladder is generally full of black looking bile. No material change takes place in the two first stomachs; the 3rd stomach is generally impacted with hard dry ingesta, but its membranes are as yet perfectly healthy.

The 4th stomach, or abomasum, which is the true digestive stomach of the ruminant, is generally found almost empty, as are also the intestines, large and small. The small quantity of liquid excreta which they contain is mixed with mucus and sometimes with blood; it has a very offensive smell. The inner lining membrane of this organ is found to be highly inflamed and studded with black patches, and this appearance extends itself to the duodenum, and indeed, throughout a considerable portion of the small intestines.

3rd or last Stage. — Gangrenous inflammation with ulcerations affecting the 4th stomach and the whole course of the intestines; the other stomachs offer scarcely any anatomical lesions beyond a few red patches on the lining and peritoneal membranes of the rumen and reticulum; these are however so slight that they can scarcely be looked upon as indications of the disease. The 3rd stomach is in the generality of cases found impacted with hard dry food, and its lining membrane is easily detached. It appears as though it had been suddenly paralysed. The inflammation of the air passages, especially about the larynx, is so intense as to give the mucous membrane a violet appearance. The brain which, in the earlier stages of the disease, appears healthy, is now softened and discolored, and contains within its ventricles a dirty straw colored fluid, besides which its membranes are highly injected with dark venous blood. It is a most curious fact that the disease even in this last stage appears to confine itself to the abomasum, intestines and upper parts of the air passages, all the other organs being comparatively speaking healthy. Up to the present, this epizootic has not attacked either horses, sheep, goats, or pigs.

I have the honor to be,

Sir,

Your most obedient servant,

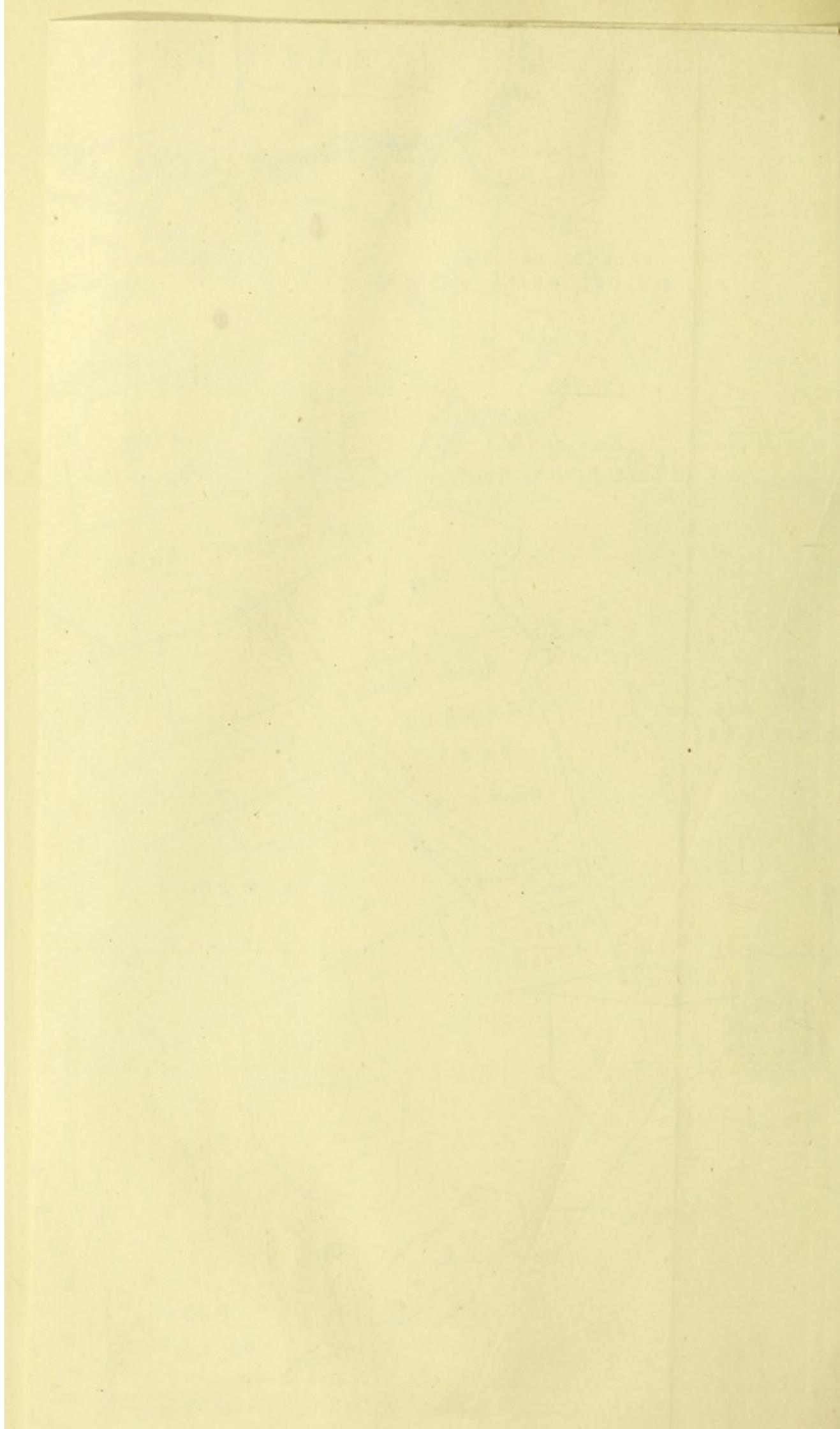
CHARLES BRADSHAW,

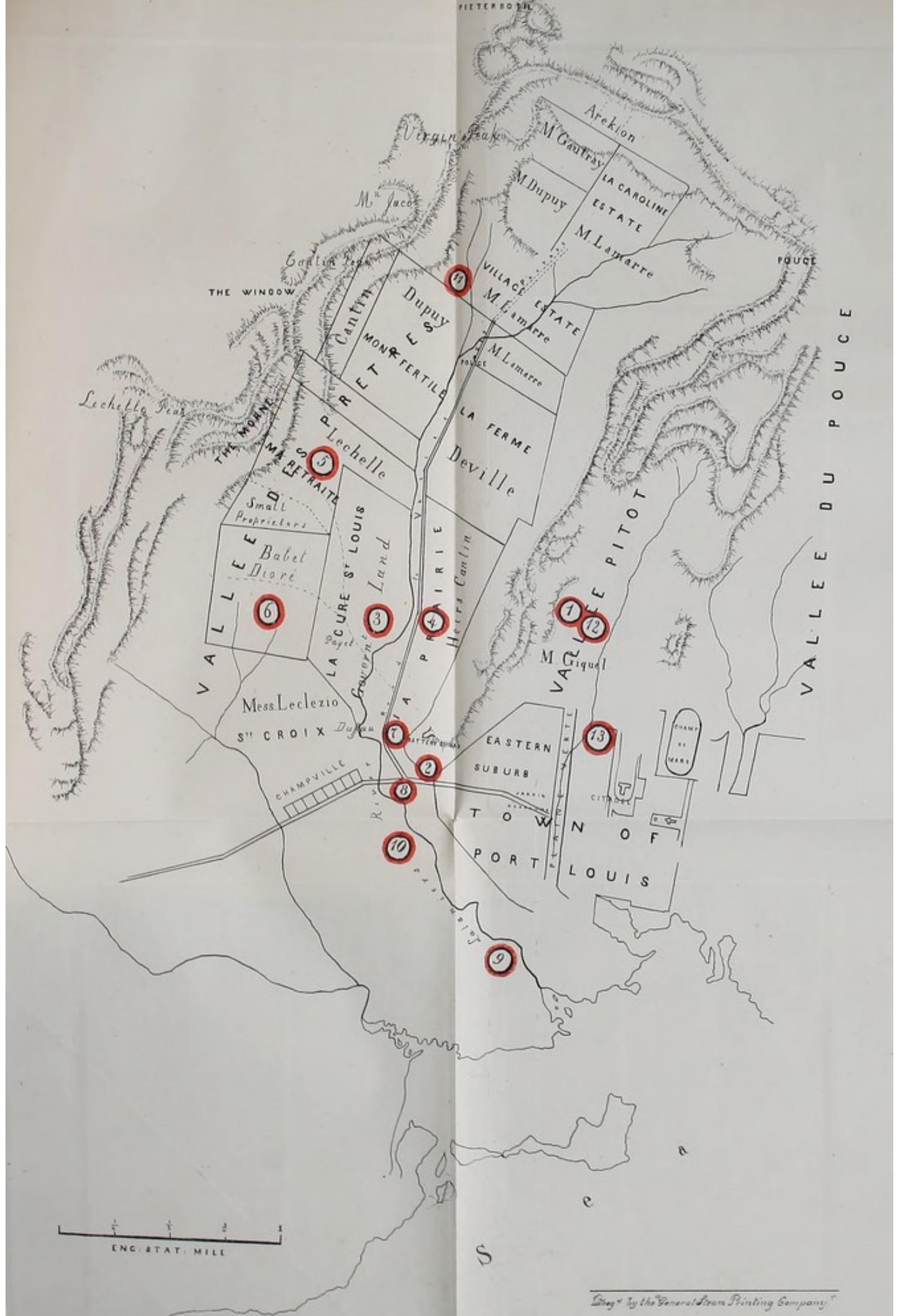
Govt. V. S.

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THE WINDOW

POUCE

VALLÉE DU POUCE

THE MOUNTAIN

VALLÉE

VALLÉE PITOT

TOWN OF PORT LOUIS

EASTERN SUBURB

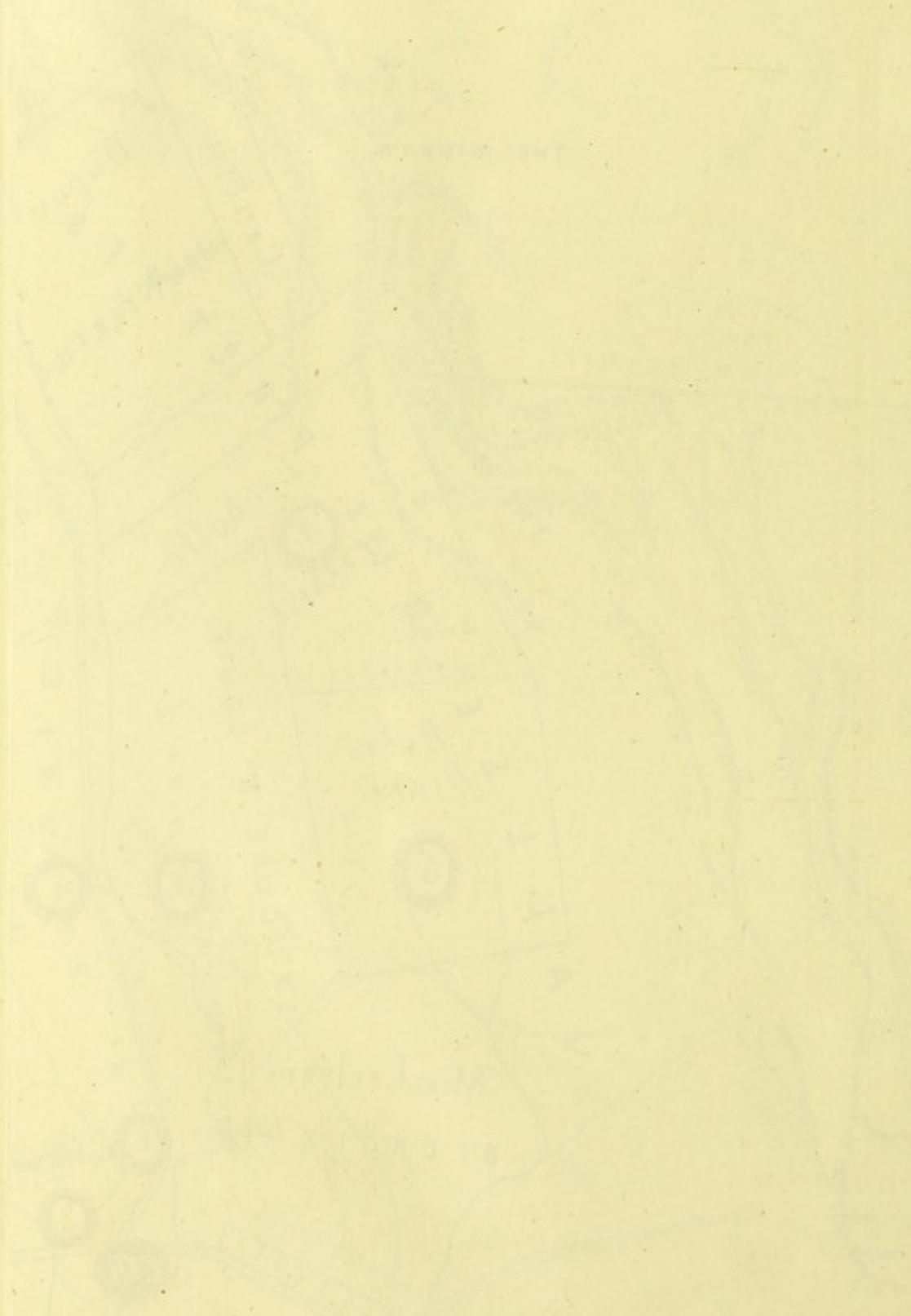
ST CROIX

CHAMPVILLE

RIVER PORT LOUIS



S



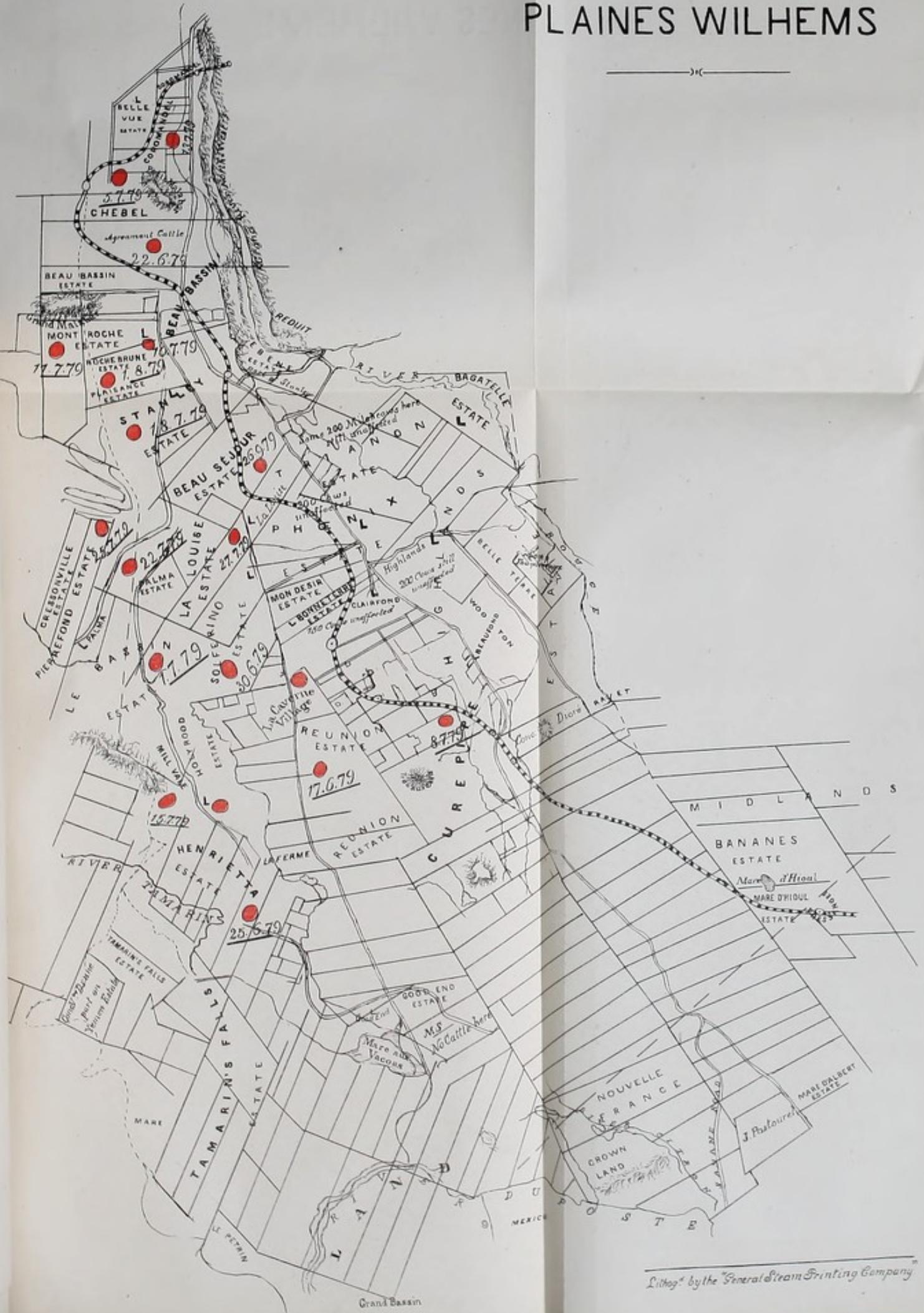








# PLAINES WILHEMS



Grand Bassin

