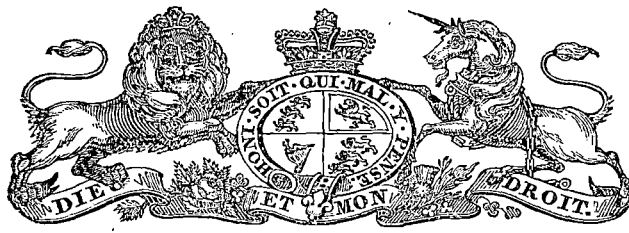


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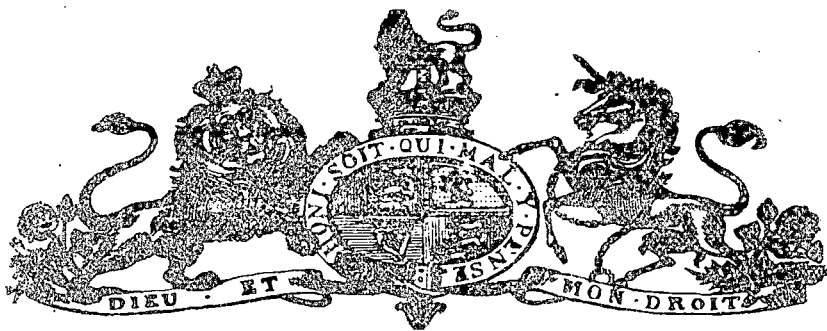
1889.

PARLIAMENT OF TASMANIA.

CHIEF INSPECTOR OF SHEEP :

REPORT FOR YEAR ENDING JUNE 30, 1889.

Presented to both Houses of Parliament by His Excellency's Command.



REPORT OF CHIEF INSPECTOR OF SHEEP.

Office of Inspector of Sheep, Hobart, 30th June, 1889.

SIR,

I HAVE the honor to furnish my Report upon the Scab Act up to the 30th June.

I have annually brought under your notice, when supplying my Report, the obnoxious name of this Act, which is still perpetuated notwithstanding my repeated request that it should be renamed, the present one being a misnomer, this being the ninth year since the eradication of the disease from Tasmania.

In September last year I visited Victoria, New South Wales, and Queensland, to obtain if possible the long desired relaxation of their stock laws dealing with the landing and dipping of Tasmanian stud sheep imported into those Colonies, but so far without result. I incline to the opinion that the Governments of the above Colonies desire the alteration required, but that they are considerably hampered from representations being made to them by their own stud-breeders, who are afraid of the keen competition that would follow were our best stud animals allowed to be submitted and sold by auction without having to undergo a dipping after sale. This operation prevents to a considerable extent the very large stud sheep trade that we might otherwise carry on with the adjoining Colonies.

Purchasers take an unfair advantage by placing too high a margin for risk of killing sheep when they are immersed in the dip.

Being anxious to deal with this much vexed question at as early a date as possible, I pledged myself to the heads of the Stock Branches of the before-named Colonies to recommend to the Government of Tasmania to have the "Scab Act" amended during the adjourned Session so that I should have power given me to frame regulations to compel the masters of vessels carrying stud sheep to certify that the vessel has not during the preceding six months been in any port other than those of clean colonies, or received on board sheep from any place outside clean colonies. I carried my undertaking into effect immediately upon my return to Tasmania by a representation to the Government on 6th November last. Unfortunately, Parliament was prorogued without the necessary amendments being passed, consequently the Colony as a whole will suffer a heavy pecuniary loss. The stud-breeders will also have for another season to submit to objectionable stock laws when exporting sheep. I beg to suggest that the necessary amendments be made during the coming Session of Parliament. I may inform you that I placed the matter of captain's certificates before the Manager of the T. S. N. Company: he at once recognised the importance of stud sheep being shipped under such conditions, and immediately issued instructions to the various offices of the company to intimate to captains of steamers that such certificates as furnished by me must be signed by them when Tasmanian stud sheep are being exported. I have to thank the Manager for his courtesy in acceding to my request.

I used my best endeavours to have this dipping question brought before the Members of the Federal Council during the meeting in January (in an informal way), so that the Members of the several Governments present might be fully apprised of the circumstances of our case, and the hardships that are consequent upon the existing stock laws in the adjoining Colonies. Unfortunately, from the fact of New South Wales being unrepresented, the suggestions were not entertained. During my last visit to Sydney, in March of the present year, I again interviewed the Hon. the Minister of Public Works, also the Hon. the Minister of Mines, who is the departmental head of the Stock Office in that Colony, to urge the carrying out of my previous requests. The latter Minister I saw in the presence of the Chief Inspector of Stock, who informed the Minister that the majority of the Pasture Boards of New South Wales were in favour of the admittance of Tasmanian stud sheep without compelling any dipping before being travelled, but recommended that it should be made an intercolonial question. This is now being done.

Having in view the persistent action of the stock authorities in Victoria to retain the wholly unnecessary and injurious restrictions upon the importation of Tasmanian stud sheep into that Colony, I have reason to fear that they will not be admitted into New South Wales, South Australia, and Queensland without being dipped.

I think it important to inform you that notwithstanding the Chief Inspector of Victoria is so alarmed at risking the introduction of scab into the Colony under his supervision (although this Colony has been free from scab disease for the past nine years,) yet he has admitted sheep from New Zealand, a scabby Colony, and allowed at the last annual sales held in Melbourne, in August 1888, a draft of sheep to be landed from one of the Union Steam Company's vessels that had been shipped from New Zealand, and to stand for exhibition and sale in the same sheds with Tasmanian stud sheep. Purchasers wishing to inspect could and did pass from pen to pen without any precaution being taken, beyond the dipping of sheep before being travelled inland. The Chief Inspector evidently does not fear the carrying of the scab insect in the clothes of those who inspect the sheep, for, doubtless, the same clothes are worn by persons inspecting sheep at the annual sales immediately upon their return to stations, when comparing station sheep with those previously inspected in Melbourne; such a procedure appears to me to be wholly inconsistent.

Since my last Report there have been two fresh outbreaks of scab in New Zealand—one in the Middle and one in the North Island—which was supposed to have been clean from scab for some considerable time. I have deemed it expedient to recommend that regulations be framed to prevent Victorian sheep that are carried upon the Union Steamship Company's vessels being landed in Tasmania. This precaution is consequent upon the fact of these steamships trading along the coastal ports of New Zealand, and, very possibly, carrying sheep from port to port, and so by this agency leaving the means of infection upon ship-board.

This action may be questioned and opposed by a certain section of the community; but having the sheepowners of this Colony to consider, who have cleaned the sheep in the Island at their own expense, and provided funds for the service of this Department, they are worthy of the first consideration.

The wool and stud sheep industry is of more importance to the Colony than the speculations of one or two gentlemen who invest for their own profit and benefit in the importation of fat sheep, and who do not care if the sheep in the Colony again become scabby, so long as they benefit by the operation.

The following table will show the export trade in stud sheep to the adjoining colonies since 1870 up to 30th June of the present year, with the Custom House value thereon. It is important to note that this is the only stock industry that produces any return of money that leaves the Colony for the purchase of fat stock, both sheep and cattle.

Year.	Number.	Value.	Year.	Number.	Value.	Year.	Number.	Value.
		£			£			£
1870.....	807	4115	1876.....	1403	18,157	1882.....	1937	34,012
1871.....	998	4660	1877.....	1303	10,103	1883.....	2913	62,275
1872.....	2433	15,500	1878.....	651	8485	1884.....	3234	60,758
1873.....	2586	15,547	1879.....	1496	47,259	1885.....	2825	51,325
1874.....	1997	20,895	1880.....	—	—	1886-7.....	5240	67,424
1875.....	1673	23,414	1881.....	1306	38,305	1888-9.....	6620	89,469

I beg to draw your special attention to Appendix F., from which you will observe that there is a very considerable increase in the number of fat cattle and fat sheep imported during the past year 1888, and that the money value exceeds that of 1887 by £49,546.

You will note from the number of sheep shown to be depastured in each district up to 30th June, that the annual decrease still continues. This must be viewed with great alarm.

The rabbit increase is certainly the primary cause; no doubt the disastrous dry season just past has had a certain influence upon the large percentage of loss. This decrease will continue so long as Tasmanian stockowners look quietly on and submit to such an imperfect scheme to reduce the pest as that which is now the law of the country. I refer to the objectionable Board system. I again reiterate that had the Rabbit Bill that was presented to Parliament in 1886, which was the outcome of opinions expressed at a meeting of practical pastoral gentlemen held at the Town Hall, Hobart, at the instance of the Southern Tasmanian Pastoral and Agricultural Association, become law, there would not now exist the cry "rabbits are increasing and extending." The successful reduction of the pest from the passing of the present Rabbit Act is a perfect myth; the simultaneous

action that should be between the now formed Boards does not exist. Few Boards care to accept the responsibility of compelling their inspector to stringently carry out the penal clauses, which is a necessity; in fact, the working of this Act is ridiculed by all practical men. Should I be deemed impertinent for my condemnation of the present theoretical Rabbit Act, my apology must be the interest I take in the administration of a law that is of vital importance to Tasmania, and looked upon as one of the great Australian questions of the day. This is shown by the appointment of the Royal Commission which has lately partly concluded its work in New South Wales (of which I had the honour of being a member), and which has taken voluminous evidence relative to the best method of dealing with the rabbit pest.

I propose to briefly review the recommendations made to the Government of New South Wales, who generously offered a prize of £25,000 to any person or persons who would make known and demonstrate at his or their own expense any method or process not previously known in the Colony for the effectual extermination of rabbits. There were one hundred and fifteen (115) schemes for the destruction of rabbits by disease submitted to the Commission, and fourteen hundred (1400) otherwise than by disease. The most prominent schemes for destruction by disease were M. Pasteur's Chicken Cholera, the so-called Tintanalogy disease, Bladder-worm, and *Sarcoptes Cuniculi* or Rabbit Scab. These methods, in the opinion of the Commission, will not be the means of effectually destroying rabbits in such numbers as would be of any permanent good, or comply with the terms of the prize offered. Of the 1400 schemes alluded to above, a large number were mechanical appliances in the way of traps, and the balance were deemed, after mature consideration, impracticable.

I beg to apprise you of certain points upon which the Commission has arrived at definite conclusions, the chief of which may be formulated as follows, and strongly recommend that they be printed for the information of those who are strenuously exerting themselves to be rid of the pest:—

- (1.) That the responsibility for the destruction of rabbits, whether on freehold or on leasehold land, must rest on the landholder. That with respect to unoccupied Crown lands, the State must accept similar responsibility.
- (2.) That the rabbit pest has made the continuance of the system of annual leases of Crown lands impossible.
- (3.) That no finality in rabbit destruction will be obtained without making the erection of rabbit-proof fences compulsory.
- (4.) That there are very large areas of land so poor that the erection of rabbit-proof fences around individual holdings might cause financial failure. That the Department administering the Rabbit Destruction Acts should be empowered to permit the fencing of such poor holdings in groups. That in dealing with land of very poor carrying capacity the State should show special consideration to the lessees in respect of tenure.
- (5.) That in all infested country, but especially in such poor districts, simultaneous operations for the destruction of rabbits should be made compulsory.
- (6.) That netting fencing, 3 feet high, with a mesh of $1\frac{1}{2}$ inch, forms a practically efficient barrier against the incursions of rabbits.
- (7.) That the system of compulsory trapping, with professional trappers and State bonuses, is radically bad.
- (8.) That legislative measures should be taken compelling landowners or lessees in districts infested by rabbits to join, subject to the above provisions, in payment of the cost of rabbit-proof netting fences or in the addition of such netting to existing fences.

In the opinion of the Commission these propositions require little explanation or argument in their favour. Responsibility for the destruction of rabbits must be placed somewhere. To whom can it be assigned but to the holder of the land, whether owner or lessee? Boundary fences would then be paid for jointly by neighbours. The State must take all the responsibilities of ownership with reference to unoccupied Crown lands, both as to destruction of rabbits and joint payment of the cost of boundary fences. In infested country the leasehold occupiers of Crown lands must have certainty that, if they expend the money necessary for the destruction of rabbits and for the protection of their lands, they will enjoy for a fair term the fruit of their labours. The contest with rabbits is most difficult in the huge resumed areas of poor land now held under ordinary squatting tenure. To break up these large holdings at once into small blocks is to postpone the adoption of effective measures for the destruction of rabbits. The first work in saving these lands must be done by large holders; and the necessary expenditure will not be incurred unless there is a reasonable security of return. In every large leasehold of this character it should be arranged that at intervals a certain fraction of the whole should be open for resumption. There would then be no sound reason for complaint either by the State, the lessee, or the selector. The necessity for rabbit-proof fencing scarcely needs demonstration. However stringent supervision may be, action on adjoining holdings will fail in certain cases to be simultaneous, and the holder who acts promptly will find in the absence of fencing that the respite from the plague is but temporary, while the holder whose lands abut on unoccupied hilly or scrubby country will see all his operations futile. When once rabbit-proof fences are erected the reduction of the pest within manageable proportions is a question simply of time and money. Yet, with large areas of land of very poor carrying capacity, the erection of rabbit-proof fencing around individual holdings may not be financially practicable. These areas must be fenced off from the better land around, and the *simultaneous* pursuance of the best known methods of rabbit destruction must

be made compulsory. The Commission, realising that the cost of netting fencing was a great difficulty, made careful enquiry concerning the minimum height and the maximum mesh which would prove effective. Abundant evidence will be found in the proceedings in favour of the decision of the Commission: that netting fencing, 3 feet high, with $1\frac{1}{2}$ inch mesh, is for all practical purposes an effective barrier. Such was the almost unvarying testimony of those witnesses who had practical experience with netting of this width and mesh. Rabbits die of starvation when their warrens are encircled with this netting; gardens protected by it are free from invasion, though the infested country around is dry and bare. Little weight can be attached to the opinions of witnesses who never used such netting, and still less to experiments in which rabbits are chased in small enclosures.

The system of compulsory trapping, with professional rabbiters and State bonuses, is radically bad. Rabbiting parties settle down in thickly-infested country and speedily kill multitudes of rabbits; as soon as the numbers are greatly thinned a longer stay is unremunerative. No attempt at extermination is made. The party moves on to another place favourable for its operations, leaving the remaining rabbits to multiply ready for its next visit. Large sums are paid to such parties *per capita*. The station hands are demoralised. The State treasury is depleted of hundreds of thousands of pounds, and with what result? The rabbits are as numerous as ever; the operations of the trappers simply drive them more and more widely over the country; the landholders are disgusted at being forced to assist in a practice which they condemn; and no good whatever is done except to the rabbiters themselves, who fatten on a pernicious system. The Commission expresses its satisfaction that the Rabbit Department of New South Wales has resolutely turned its back upon this wasteful policy. It must not be inferred that the Commission objects to traps and trapping parties *per se*. Trapping is, without doubt, a useful method, but should be carried out by station hands, and with a view to the extermination of rabbits, not to profitable employment.*

The above recommendations are somewhat on the lines of those previously made by me when reporting upon the rabbit question, and which I still hold to be correct. I differ from the Report upon the size of mesh, which I think should be $1\frac{1}{2}$ inch instead of $1\frac{3}{8}$ inch, and strongly advise those about to erect a secure rabbit-proof fence to do so with the $1\frac{1}{2}$ -inch mesh, and 3 feet 6 inches in height. That will allow 6 inches in the ground to prevent burrowing under.

Side by side with a law to make fencing compulsory must come a Fencing Act, to cause neighbours to bear their fair share of the cost of erection and maintaining the side-line fences.

As you are aware, I attended, in conjunction with Mr. Park, Veterinary Surgeon, the experiments made at Junee to test the efficiency of M. Pasteur's vaccine to prevent anthrax, and am perfectly satisfied, as was the large gathering of those interested in stock, that the demonstrations were most instructive and practical, and reflect the greatest credit upon the Stock Department of New South Wales, who initiated the experiments, and upon M. Germont and Loir, who so scientifically carried them out.

I consider it most advisable that the Government have published with this Report that which was printed by order of the Legislative Council of New South Wales in December, 1888, and herewith attached, for the information of stockowners in Tasmania.

ANTHRAX (CUMBERLAND) DISEASE IN SHEEP AND CATTLE.

TEST OF EFFICACY OF PASTEUR'S VACCINE OF ANTHRAX AS A PREVENTIVE AGAINST—REPORT OF EXPERIMENTS AT JUNEE, &c.)

Ordered by the Legislative Assembly to be printed, 13 December, 1888.

Department of Mines, Stock Branch, Sydney, 14 August, 1888.

His Excellency the Governor, with the advice of the Executive Council, has been pleased to approve of the appointment of the under-mentioned gentlemen as a Board to watch and report upon the experiments to be made by the representatives of M. Pasteur, Paris (France), in demonstrating the efficacy of Pasteur's "Vaccine of Paris" as a preventive for Anthrax (Cumberland Disease) in Sheep and Cattle, viz:—

JOHN DE V. LAMB, Esquire, Chairman, Board of Sheep Directors, Sydney;
ARTHUR A. DEVLIN, Esquire, Chairman, Board of Sheep Directors, Narandera;
WILLIAM M. HAMLET, Esquire, F.I.C., F.C.S., Government Analyst;
ALEXANDER BRUCE, Esquire, Chief Inspector of Stock; and
EDWARD STANLEY, Esquire, F.R.C.V.S., Government Veterinarian.

FRANCIS ABIGAIL.

* This limited recommendation of trapping must be held to apply only to areas enclosed by wire-netting fences, and in which the propagation of natural enemies of rabbits is not being encouraged.

REPORT on experiments at Junee, during September and October, 1888, carried out by the representatives of M. Pasteur, Paris, under supervision of the members of the Anthrax Board, in demonstrating the efficacy of Pasteur's "Vaccine of Anthrax" as a preventive against Anthrax (Cumberland) Disease in sheep and cattle.

The Honorable Francis Abigail, M.P., &c., &c., Sydney,—

SIR,

WE have the honour to submit our Report upon the experiments recently carried out at Junee by Dr. Germont and M. Loir, the representatives of M. Pasteur, for the purpose of demonstrating the efficacy of his vaccine of anthrax as a preventive against anthrax, *i.e.*, Cumberland Disease; and we have to congratulate those gentlemen and the Colony on the unqualified success of their demonstration.

During the early part of August last, Mr. T. W. Hammond, of Junee, was asked if he would allow the experiments to be carried out on his run, when that gentleman at once placed some 30 acres of land adjoining the railway line, about a mile from Junee Junction, at the disposal of the Board. The site was inspected and found in every way suitable, and the necessary fencing and buildings were erected under Mr. Devlin's supervision.

First Vaccination.

Dr. Germont submitted a programme of the proposed demonstration (similar to that by M. Pasteur at Pouilly-le-Fort in 1881), which was approved by the Board, who proceeded to Junee on September 3rd to witness the first vaccination. In order to ensure that none of the stock were infected with the disease, thirty-nine sheep and six head of cattle had previously been purchased at Cootamundra, an uninfected district, and of these twenty sheep and four cattle were vaccinated by Dr. Germont, assisted by M. Loir, on September 4th, under the supervision of the Board.

The sheep were vaccinated on the inner side of the off thigh by the hypodermic injection of one-eighth part of a cubic centimetre (about two minims) of attenuated vaccine of anthrax—"First Vaccine of Pasteur." The cattle were similarly operated on behind the shoulder, each receiving one-fourth part of a cubic centimetre, *i.e.*, four minims. The temperature of each animal treated was taken immediately afterwards, and will be found recorded on page 3, the normal temperature being—sheep, 103 deg. to 104 deg.; cattle, 101 deg. to 102 deg. It was also taken on the 5th, when a general rise of the temperature of the sheep was discerned, and in the case of one of the sheep had risen to 106·2. On the following day the temperature had in most cases slightly fallen. This was also the case in regard to the sheep whose temperature had reached 106 deg. Another had gone up to 106, but was on the following day found to have gone down to 102·3. The sheep between this and the second vaccination continued to be closely watched, but exhibited no symptoms of being affected by the operation.

Second Vaccination.

The members of the Board (with the exception of Mr. Lamb, who was unavoidably absent) attended at Junee on September 18 to watch the second vaccination, when Dr. Germont and M. Loir re-vaccinated the twenty sheep and four cattle, this time with the same quantity of Pasteur's second vaccine of anthrax. The temperature of the animals was taken immediately afterwards, when it was found that it corresponded with that of the previous vaccination. On the following day a considerable rise of temperature was noticeable in those sheep which had shown no rise after the first vaccination, two of them going as high as 107 deg. On the following day there was a considerable fall in nearly all the sheep except one, which registered 105·2 deg. (See page 4.) The vaccinated and unvaccinated animals were allowed to run together, but no ill effects were noticed.

On September 18, Dr. Germont also inoculated two sheep, in the presence of the Board, with a cultivation of the virulent virus of anthrax (Cumberland) disease. This virus had been originally procured by the Government Veterinarian (Mr. Stanley) in May last from Mr. A. A. Devlin's sheep at Uarah, and was handed by him to the Government Analyst (Mr. Hamlet), on September 13, for this inoculation, the object being to test its efficacy, and, if still effective, to obtain a supply of fresh virulent virus for the demonstration. The result showed that the virus had lost none of its vitality, the two inoculated sheep dying at 8 P.M. on the following day, being thirty-two hours after inoculation. Careful *post-mortem* examination of these sheep by Mr. Stanley and Mr. Devlin, in the presence of Mr. Hamlet and Dr. Germont, showed unmistakable indication of the disease anthrax, and the microscope revealed its characteristic bacilli. Blood was taken by Mr. Hamlet from one of these sheep for the purpose of preparing a cultivation for the final test, and the cultivation was carried out in the Government Laboratory, Sydney, under his supervision by M. Loir.

Inoculation of Sheep with Virulent Virus for Demonstration.

The cultivation prepared under Mr. Hamlet's supervision was taken on September 29 to Junee, and on the 30th three sheep were inoculated with different quantities of this cultivation by Dr. Germont, in the presence of Mr. Devlin and Mr. Bruce, at the experimental station, with the view to have the deaths occurring at different times for the purpose of demonstration. Of these, the first sheep died at 6 A.M. on October 2, thirty-four hours after the inoculation; the second at 3·30 P.M. of the same day, forty-three and a half hours after inoculation; and the third sheep at 9 A.M. of the 3rd, fifty-nine hours after inoculation.

Final Experiments and Demonstration.

All the members of the Board attended at Junee on Tuesday, the 2nd instant, together with Dr. Thompson, of the Board of Health, the Chief Inspectors of Stock for Victoria, Queensland, and Tasmania, and the Government Veterinarians for Victoria and Tasmania. There were also present a considerable number of Delegates from the Pasture and Stock Protection Boards, and a good many Inspectors of Stock and visitors from different parts of the Colony, in all about 200 people. At 3.30 P.M. one of the sheep inoculated on September 30 died, as anticipated. After *post-mortem* examination and inspection of the blood under the microscope, and the Board being satisfied that the death was caused by anthrax, Dr. Germont and M. Loir commenced the inoculation of the thirty-nine sheep with the blood of this sheep, at 4.45 P.M., doing the vaccinated and unvaccinated sheep alternately, using the same syringe and the same quantity of blood for each, viz., one-eighth part of a cubic centimetre, equal to two minims. The six head of cattle were also inoculated with blood from the same sheep, and with the same syringe, receiving one-fourth part of a cubic centimetre. The whole of the inoculated sheep, both vaccinated and unvaccinated, were then placed in the same enclosure, fed upon the same food, and drank from the same trough. Green food was scattered about the floor upon which the unvaccinated sheep were dying, and sanious discharges contaminated the food. The vaccinated sheep, in addition to the inoculation, also had to undergo the risk of contracting the disease by taking up the blood or other excreta from the unvaccinated sheep which died in the same pen, where they were confined and fed for four days after the inoculation took place.

The first of the nineteen unvaccinated sheep succumbed to the disease at 8.15 P.M. on 3rd October, being about twenty-seven hours after inoculation, and the last of that number died at 5.30 A.M. on Friday, 5th October, sixty hours fifteen minutes after inoculation. Of the two unvaccinated cattle (Nos. 88 and 33) the former died at 10.30 P.M. on Saturday, 6th October, while the latter, though having been very ill, is likely to recover. All the protected sheep and cattle continued unaffected, and are in remarkably good health. Mr. Stanley made a *post-mortem* examination of all the sheep that died, and found the lesions of anthrax very decidedly indicated in every instance. The diagnostic changes were the black semi-fluid blood, the enlarged, softened, blackened spleen, and the dark bloody colour of the urine. These conditions were well marked in each case. During the examination the changes produced by the disease, such as the blood-stains, patches of inflammation in various parts of the body, the gelatinous bloody effusion at the point of inoculation, and other points of interest, were explained to the visitors. A healthy sheep was killed for the purpose of comparison of the organs with those of a diseased sheep.

In order to remove any possibility of doubt as to the cause of death, the Board requested Mr. Hamlet (Government Analyst) to examine the blood of the sheep as the *post mortem* examinations were made, and in every case the blood, when submitted to that test under the microscope, contained *bacilli anthracis*. The blood of the healthy sheep was also examined and exhibited for comparison.

At the request of one of the visitors present (Mr. R. G. Higgins), a sheep which had been protected by vaccination and afterwards inoculated on September 12 was killed, but did not show any trace whatever of the disease, neither was there any effect upon the wool. This was eighteen days after inoculation. Some additional experiments are being made by the Board to ascertain, if possible, why travelling sheep are more subject to the disease, and if there is any difference in the *post mortem* appearances of inoculated and naturally-infected sheep, but as sufficient time has not yet elapsed it is premature to offer an opinion thereon. The results will form the subject of an additional report.

Opinion of the Board.

After carefully watching the whole series of experiments and giving the subject the fullest consideration, the Board are unanimously of opinion that Dr. Germont and M. Loir have conclusively demonstrated the efficacy of M. Pasteur's "Vaccine of Anthrax" as a preventive against that disease, and therefore recommend its adoption and use. In conclusion, the Board desire to express their appreciation of the untiring efforts of Dr. Germont and M. Loir, by whom the late demonstration was made most interesting and instructive to the large number of gentlemen attending. The Board also wish to express their appreciation of the able and efficient manner in which the duties of Secretary have been discharged by Mr. E. C. Weller.

J. DE V. LAMB, *Chairman*.
WILLIAM M. HAMLET, *F.I.C., F.C.S.*
ALEX. BRUCE.
EDWARD STANLEY, *F.R.C.V.S.*
ARTHUR A. DEVLIN.

Dated at Sydney, this 12th day of October, 1888.

RECORD Notes of Animals vaccinated with "1st Vaccine," at Junee, while under observation, on 4th, 5th, and 6th September, 1888.

Sheep.

Ear Tag Numbers.	Sex.	Age.	Temperature.			Seat of Vaccination.	Remarks.
			4th Sept.	5th Sept.	6th Sept.		
225	Wether	2-tooth	103·2	104·0	103·0	On the inner surface of the right thigh. Note.—The part was first washed with carbolic water.	
227	"	6 "	103·8	104·0	103·0		
228	"	6 "	103·4	104·6	106·0		
229	"	4 "	104·2	104·8	104·8		
230	"	4 "	103·4	104·4	104·0		
231	"	4 "	103·2	103·4	102·4		
232	"	4 "	104·0	103·8	103·6		
233	"	4 "	103·6	106·2	104·0		
234	"	4 "	103·8	104·6	104·2		
236	"	6 "	103·2	104·8	104·6		
237	"	6 "	103·0	103·2	103·4		
238	"	8 "	103·0	103·4	104·6		
239	"	6 "	103·0	103·0	102·8		
240	"	6 "	103·0	104·0	104·0		
241	"	4 "	104·2	104·4	104·0		
242	"	6 "	103·6	103·2	104·6		
243	"	4 "	103·6	103·8	104·4		
244	"	6 "	104·0	104·6	103·4		
246	"	6 "	103·6	103·0	104·6		
247	"	6 "	104·0	104·2	103·0		
		Mean...	103·54	104·07	103·92		

Cattle.

Fire-brand right horn.					
41	Cow	Aged	102·0	101·8	102·0
55	"	4 years	102·2	101·4	102·0
22	"	3 "	104·8	102·0	101·8
77	"	3 "	102·0	101·8	101·8
		Mean...	102·75	101·75	101·9

RECORD Notes of Animals vaccinated with "2nd Vaccine," at Junee, while under observation, on 18th, 19th, and 20th September, 1888.

Sheep.

Ear Tag Number.	Sex.	Age.	Temperature.			Seat of Vaccination.	Remarks.
			18th Sept.	19th Sept.	20th Sept.		
225	Wether	2-tooth	103·0	105·8	103·0	The inner surface of the left thigh.	
227	"	6 "	103·4	105·0	103·0		
228	"	6 "	104·0	103·2	103·0		
229	"	4 "	104·8	107·0*	104·8		*High temp. on the 19th
230	"	4 "	104·0	106·0	104·0		
231	"	4 "	103·6	105·0	102·8		
232	"	4 "	103·4	105·0	103·8		
233	"	4 "	104·0	104·0	102·8		
234	"	4 "	103·6	104·0	103·6		
236	"	6 "	103·0	104·0	102·4		
237	"	6 "	103·0	103·2	102·8		
238	"	8 "	102·6	103·0	102·8		
239	"	6 "	103·1	104·0	104·4		
240	"	6 "	103·6	104·0	102·8		
241	"	4 "	103·4	107·0	103·2		
242	"	6 "	104·0	103·0	103·6		
243	"	4 "	104·6	104·6	105·2		
244	"	6 "	103·8	105·0	103·0		
246	"	6 "	104·0	104·6	104·2		
247	"	6 "	103·8	106·0	102·8		
		Mean...	103·63	104·67	103·4		
Fire-brand right horn.							
41	Cow	Aged	102·4	102·4	102·0		
55	"	4 years	102·0	102·0	102·2		
22	"	3 "	101·8	101·8	102·2		
77	"	3 "	102·4	103·0	102·3		
		Mean...	102·15	102·3	102·17		

TABLE showing Deaths of Nineteen unprotected Sheep.

No.	Date of Deaths.	Time.	No.	Date of Deaths.	Time.
2	Wednesday, October 3	8:15 p.m.	4	Thursday, October 4	5:45 a.m.
7	Do do "	8:26 "	18	Do do "	6:15 "
15	Do do "	10:40 "	1	Do do "	7:0 "
14	Do do "	11:25 "	3	Do do "	12:0 p.m.
11	Thursday, do 4	12:55 a.m.	9	Do do "	3:0 "
19	Do do "	1:40 "	17	Do do "	3:0 "
6	Do do "	1:45 "	16	Do do "	5:30 "
13	Do do "	2:5 "	8	Do do "	6:15 "
12	Do do "	2:35 "	5	Friday, do 5	5:30 a.m.
10	Do do "	3:40 "			

Cattle.

Of the two unprotected cattle, one died on 7th October ; the other, though very ill, recovered.

SUPPLEMENTARY REPORT A.

The Honorable Francis Abigail, M.P., Minister for Mines, Sydney,—

Sir,

We have the honor to report the result of the supplementary experiments carried out at Juneë, with some of the sheep generously furnished by Messrs. Robertson Brothers, of Mimosa and Goreë, for the purpose of ascertaining as far as possible,—

- I. The cause of the comparatively sudden deaths which at times occur among travelling sheep from anthrax.
- II. Whether there is any difference, as it was alleged there is, in the *post mortem* appearances of the spleens of sheep which died from infection contained in their food or water and those presented by sheep which died from inoculation with virulent virus.

I.—THE CAUSE OF SUDDEN DEATHS AMONG TRAVELLING SHEEP FROM ANTHRAX.

To test this, four sheep were inoculated at 2 P.M. on the 5th October, with blood taken from the heart of a sheep which had died of anthrax.

The sheep were then kept moving for six or seven hours in the paddock, as if they were being driven on the road. In this way their temperature was raised considerably over what it would have been if the sheep had been left quietly in the paddock ; and they suffered in some degree from exhaustion, but not to anything like the same extent as if they had been long on the road, and had been weakened from want of grass and water and over-driving.

On the following day (6th October), at 2 P.M., one of the inoculated sheep died ; at 4 P.M. another of the sheep died ; at 6:30 A.M. of the 7th October another inoculated sheep died ; and at 7:30 A.M. of that date the fourth and last inoculated sheep died.

From this it will be seen that the first two deaths occurred within a shorter time than those of any of the other sheep which died of inoculation with virulent virus during the demonstration, and that the average period of inoculation of the whole four sheep—thirty-three hours—is considerably less than that of the other inoculated sheep ; and the result, we think, indicates that our supposition is correct, and that given conditions favourable to a speedy development and termination of the disease—such as fever, starvation, and exhaustion—we need not be surprised if deaths occur among travelling sheep within twenty hours of their coming on infected ground. While, however, the somewhat imperfect experiment points in this direction, the Board would advise that the matter be put to a more severe and thorough test, with the view to finally settle the question.

II.—THE DIFFERENCE, IF ANY, IN THE POST MORTEM APPEARANCES OF SHEEP DYING FROM INOCULATION AND FROM NATURAL INFECTION.

It was decided to carry out this test by drenching the sheep both with blood from a diseased sheep and also with a cultivation of virulent virus ; so as to have the germs in a similar state to those naturally infecting the sheep.

1. *The Drench with Diseased Blood.*—At 12:45 P.M. of the 6th ultimo four sheep were drenched with some of the same blood as the other four sheep were inoculated with, the sheep receiving the following quantities :—

No. 1, branded ↗ in red on top of shoulder ; with a strong dose—about 2 ounces.

No. 2, branded ↗ in red on near rump ; with a less dose—about 1½ ounces.

No. 3, branded ↗ in red on off ribs ; with a smaller dose " 1¼ ounces.

No. 4, branded ↗ on near ribs ; with a still smaller dose " 1 ounce.

Of these four sheep, the one which had received a dose of 1 ounce died on the 7th October, at 4 A.M., *i.e.*, in about forty hours ; another, which had received 2 ounces, died on the 9th, at 2 A.M., *i.e.*, in about eighty-six hours ; and another, which received 1½ ounces, died on the 11th, at 12:15 A.M., *i.e.*, in about 144 hours. The last sheep, which was drenched with 1¼ ounces, was apparently unaffected by the dose, and is alive and well.

The three sheep which died exhibited, on *post mortem* examination, the marked symptoms of anthrax, and the bacilli were found in the blood ; but these were in no way different from the symptoms exhibited by the sheep which died from inoculation.

2. *The Drench with Cultivated Virulent Germs.*—After some delay in obtaining a supply of cultivated virulent germs, arising through the first cultivation having been kept too long before being used,—

One horned wether, branded ⬆ (in red) on shoulder, and

One wether, branded ⬆ (in red) on loin,

were drenched at noon on the 24th ultimo, each with 8 drams of virulent cultivation.

The first (the horned) wether died at 3 P.M. on the 26th, in fifty-one hours, and the other wether at 6·10 P.M. of that day, in fifty-four hours ten minutes after the drench was administered.

On the *post mortem* examination these two sheep exhibited the characteristic symptoms of anthrax, and the bacilli were found in the blood, but the symptoms differed in no respect from those observed in sheep which died from inoculation with the virulent virus.

From these experiments it would seem the supposed differences in the appearance of the spleen of sheep do not exist, or that the sheep in which a difference had been observed had been dead for some time, and putrefactive changes had set up in the spleen.

J. DE V. LAMB, *Chairman.*

ALEX. BRUCE.

WILLIAM M. HAMLET, *F.I.C., F.C.S.*

ARTHUR A. DEVLIN.

EDWARD STANLEY, *F.R.C.V.S.*

Sydney, 15 November, 1888.

SUPPLEMENTARY REPORT B.

TEST OF EFFICACY OF MR. P. H. GEHRIG'S SPECIFIC FOR ANTHRAX.

To the Honorable Francis Abigail, M.P., Minister for Mines, Sydney,—

SIR,

WE have the honor to report that, in accordance with your request, we made a close observation of the experiments made at Junee by Mr. P. H. Gehrig, of Albury, to prove the efficacy of his specific as a preventive and cure for the disease anthrax.

Six sheep from Cootamundra, an uninfested district, were provided, and numbered 20, 21, 22, 23, 24, and 25.

On the 2nd October, Mr. Gehrig, under supervision of the Board, administered his specific to three of the six sheep set apart for him to prove its efficacy as a preventive. These sheep were numbered 20, 22, and 25.

During the afternoon all six sheep were inoculated by Mr. Government Veterinarian Stanley, with two minims of blood taken from the same sheep as that taken for M. Pasteur's experiment.

To show that his specific was a cure as well as a preventive, Mr. Gehrig, at 11·10 A.M. on the following day, drenched the sheep numbered 23, 24, and 21 (which had been inoculated with virulent virus the day previously) to protect them from the effects of the inoculation.

At 7·30 P.M. these sheep commenced to die, and at 3 A.M. on Thursday morning, 4th October, all the six were dead. The deaths took place in the following order:—

No. 23 died at 7·30 p.m., Wednesday, 3rd October.

No. 22 died at 8 P.M., " "

No. 25 died at 8·35 P.M., " "

No. 20 died at 11·25 P.M., " "

No. 24 died at 3 A.M., Thursday, 4th October, and

No. 21 died at 3·45 A.M., " "

Opinion of the Board.—That Mr. Gehrig's specific is ineffectual, both as a preventive and cure of the disease anthrax.

J. DE V. LAMB, *Chairman.*

WILLIAM M. HAMLET, *F.I.C., F.C.S.*

ALEX. BRUCE.

ARTHUR A. DEVLIN.

EDWARD STANLEY.

Sydney, 15 November, 1888.

I am exceedingly sorry that, up to date, no treaty has been entered into with M. Pasteur for the supply of "The Vaccine of Paris" as a preventive against anthrax (Cumberland disease) in sheep and cattle. The discovery of this remedy is a great boon to stockowners, who, I believe, would avail themselves of the proved successful means to protect their stock from so fatal a disease.

When closing my Report upon the Scab Act for 1888, I respectfully drew your attention to my memorandum of the 24th August, 1887, and intimated that it was most important to amend the Scab Act for the purpose of making compulsory the dipping of all sheep to destroy tick and lice. The House of Assembly recognised the importance of this amendment last session by passing the amended Act; but, unfortunately, it was doomed to be read that day six months in the Legislative Council. This was a matter of regret to sheepowners, who are alive to the loss sustained from the presence of these parasites in their flocks. I must again recommend the presentation of the Bill to Parliament during the present Session, with the hope that it may become law.

I have the honor to be,

Sir,

Your obedient Servant,

The Hon. the Chief Secretary.

THOMAS A. TABART, *Chief Inspector.*

APPENDIX A.

RETURN showing the Number of Sheep and Lambs depastured in each District in the Colony.

<i>District.</i>	<i>Sheep.</i>	<i>Lambs.</i>	<i>TOTAL.</i>
Bothwell	96,449	20,930	117,388
Brighton	16,109	2914	19,023
Clarence	9961	1650	11,611
Campbell Town	94,994	18,303	113,297
Deloraine	14,072	4559	18,631
Evandale	70,429	19,689	90,118
Fingal	90,795	19,318	110,113
George Town	37,152	4593	41,745
Glamorgan	43,701	7732	51,433
Green Ponds	21,725	4001	25,726
Great Lake	34,223	2203	36,426
Glenorchy	532	268	800
Hamilton	104,522	14,613	119,135
Horton	8272	3252	11,524
Hobart and Kingborough	4538	1024	5562
Huon	2956	737	3693
Longford	93,134	23,091	116,225
New Norfolk	15,962	1821	17,783
Oatlands	128,691	27,881	156,572
Port Sorell	7596	3885	11,481
Richmond	30,138	5546	35,684
Ross	62,870	10,164	73,034
Sorell	23,928	6813	30,741
Selby	45,509	7541	53,050
Spring Bay	34,008	6146	40,154
Westbury	37,228	11,730	48,958
	1,129,494	230,413	1,359,907

APPENDIX B.

STATEMENT of the Number of Head of Cattle, Sheep, and Pigs received at the Hobart Station of the Tasmanian Main Line Railway.

<i>Year.</i>	<i>Cattle.</i>	<i>Sheep.</i>	<i>Pigs.</i>	<i>TOTAL.</i>
1877.....	1370	17,250	559	19,183
1878.....	2042	26,732	1289	30,063
1879.....	1767	27,527	1388	29,682
1880.....	2099	22,465	1671	26,235
1881.....	2071	18,226	2087	22,384
1882.....	3084	27,445	2077	32,606
1883.....	2685	21,241	2152	26,078
1884.....	3116	28,290	2691	34,097
1885.....	2148	33,991	2471	38,610
1886.....	2364	34,063	3271	40,198
1887.....	1858	30,444	3795	36,097
1888.....	1268	22,651	3173	27,092

APPENDIX C.

RETURN of Stock slaughtered during the Year 1888.

AT HOBART.		AT LAUNCESTON.	
<i>Cattle</i> —		<i>Cattle</i> —	
Colonial.....	2434	Colonial.....	2239
Imported.....	2440	Imported.....	857
<i>Sheep</i> —		<i>Sheep</i> —	
Colonial.....	18,715	Colonial.....	15,490
Imported.....	30,730	Imported.....	10,493
<i>Lambs</i> —		<i>Lambs</i> —	
Colonial.....	11,801	Colonial.....	7218
Imported.....	2598	Imported.....	2496
<i>Calves</i>	526	<i>Calves</i>	137
<i>Pigs</i>	7026	<i>Pigs</i>	891

APPENDIX D.

ABSTRACT of Wool Exports for the last Twenty Years, and number of Sheep for the 12 months ending June 30.

	Hobart.		Launceston.		TOTAL.		No. of Sheep.
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	
		£		£		£	
1869-70.....	2,583,876	134,855	2,609,718	163,709	5,193,594	298,564	1,531,186
1870-71.....	2,682,193	136,380	2,264,188	123,971	4,946,381	260,351	1,349,775
1871-72.....	2,678,171	183,500	2,230,819	170,246	4,908,990	353,746	1,305,489
1872-73.....	2,390,400	182,710	2,286,750	173,378	4,677,150	356,088	1,405,862
1873-74.....	2,873,207	207,205	2,657,584	181,728	5,530,791	388,933	1,531,242
1874-75.....	3,258,032	229,847	2,811,897	199,036	6,069,299	428,883	1,700,454
1875-76.....	3,761,993	242,498	2,845,321	195,300	6,607,214	437,798	1,783,072
1876-77.....	3,648,020	235,440	3,205,510	200,828	6,853,530	436,268	1,804,486
1877-78.....	4,020,152	260,543	3,436,453	218,799	7,436,453	479,342	1,845,810
1878-79.....	4,305,322	259,093	3,717,926	225,770	8,022,926	484,863	1,845,086
1879-80.....	4,283,926	229,226	3,862,734	224,416	8,146,660	453,642	1,800,639
1880-81.....	4,321,445	253,175	3,389,401	233,222	7,710,846	486,398	1,739,088
1881-82.....	4,620,892	239,819	3,582,717	311,656	8,203,609	451,475	1,759,420
1882-83.....	4,395,721	230,843	3,842,217	216,312	8,237,938	447,155	1,739,254
1883-84.....	3,924,145	197,708	3,846,553	233,436	7,770,698	431,144	1,704,333
1884-85.....	3,902,396	194,444	3,795,185	207,121	7,697,581	401,565	1,597,184
1885-86.....	3,798,057	126,882	4,264,666	169,127	8,062,723	296,009	1,566,881
1886-87.....	3,636,534	138,728	4,182,996	187,401	7,819,530	326,129	1,543,153
1887-88.....	3,470,092	125,896	4,597,314	208,964	8,067,406	334,860	1,474,310
1888-89.....	2,936,403	110,511	4,256,097	219,305	7,192,500	329,816	1,359,907

APPENDIX E.

The number of Sheep returned in Live Stock Returns, and under the Scab Act, since 1860 is as under:—

	In Live Stock Returns.	Under Scab Act.
From 1860 to 1869, average number.....	1,730,000	...
1870.....	1,531,187	1,416,665
1871.....	1,349,775	1,349,134
1872.....	1,305,489	1,306,359
1873.....	1,395,353	1,323,480
1874.....	1,501,531	1,531,242
1875.....	1,714,168	1,700,454
1876.....	1,719,768	1,783,072
1877.....	1,755,142	1,804,486
1878.....	1,831,278	1,845,810
1879.....	1,838,831	1,845,086
1880.....	1,848,591	1,800,639
1881.....	1,783,611	1,739,088
1882.....	1,847,479	1,759,420
1883.....	1,830,951	1,739,254
1884.....	1,817,069	1,704,333
1885.....	1,705,835	1,597,184
1886.....	1,643,627	1,566,881
1887.....	1,605,646	1,543,153
1888.....	1,547,242	1,474,310
1889.....	1,430,065	1,359,907

APPENDIX F.

Number of Sheep and Cattle imported since 1869, as under :—

YEAR.	Bullocks.	Sheep.	Value.	YEAR.	Bullocks.	Sheep.	Value.
			£				£
1869	1722	16,540	31,695	1879	1476	18,920	33,402
1870	1640	17,900	27,945	1880	1707	11,193	24,315
1871	928	13,053	18,230	1881	1953	11,458	30,173
1872	827	5398	12,102	1882	927	4795	15,814
1873	900	13,188	19,843	1883	943	10,967	22,177
1874	790	19,958	29,158	1884	462	27,730	34,897
1875	1211	22,971	36,462	1885	1353	65,339	69,921
1876	805	12,054	22,708	1886	601	52,088	50,141
1877	904	8385	19,820	1887	1907	50,790	61,361
1878	1347	10,980	23,392	1888	2975	76,097	110,907

THOMAS A. TABART, *Chief Inspector.*

APPENDIX G.

SCAB ACT FUND.

RECEIPTS and Expenditure from 1st March, 1870, to 31st December, 1888.

YEAR.	RECEIPTS.						EXPENDITURE.		
	Amount of Contribution.	Licences.	Sheep by Sea.	Fines.	Miscellaneous, Rent, Refund, Costs, &c.	TOTAL.	Salaries and Allowance.	Other Expenditure.	TOTAL.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1870	1448 12 5	..	16 3 1	22 0 0	..	1486 15 6	794 19 10	66 9 0	861 9 4
1871	1393 18 3	..	8 6 0	58 9 9	..	1460 14 0	1810 0 0	23 10 7	1833 10 7
1872	1373 4 5	115 12 1	5 6 3	106 12 5	..	1600 15 2	1830 0 0	48 14 5	1878 14 5
1873	2841 15 8	379 8 0	12 9 6	213 10 0	..	3447 3 2	2593 1 1	50 5 0	2643 6 1
1874	3241 6 6	497 18 7	18 2 1	176 18 6	12 10 0	3946 15 8	2720 0 0	163 14 0	2883 14 0
1875	1799 6 6	407 14 9	18 19 10	308 7 0	21 2 6	2555 10 7	2708 9 2	511 8 8	3279 17 10
1876	3704 14 10	169 2 0	18 10 9	165 6 0	29 17 10	4177 11 5	3677 10 0	233 4 6	3910 14 6
1877	3827 12 4	271 9 0	5 7 7	82 16 0	22 10 9	4209 15 8	3700 0 0	143 11 0	3843 11 0
1878	3921 18 4	..	31 15 3	87 4 0	18 10 0	4059 7 7	3484 10 9	272 17 8	3757 8 5
1879	1940 2 10	..	21 0 4	30 4 0	58 3 6	2049 10 8	3380 0 0	165 6 1	3545 6 1
1880	1921 9 9	..	19 2 8	11 5 0	5 0 0	1956 17 5	2805 0 0	119 15 7	2924 15 7
1881	3690 17 4	..	22 8 3	2 4 6	..	3715 10 1	1967 10 0	199 6 3	2166 16 3
1882	1897 4 4	..	8 4 6	1 15 0	..	1907 3 10	2143 16 7	128 13 6	2272 10 1
1883	1894 13 1	..	0 0 2	5 5 0	114 8 6*	2014 6 9	2450 0 0	96 1 7	2546 1 7
1884	1903 2 11	..	..	14 16 0	..	1917 18 11	2450 0 0	57 4 2	2507 4 2
1885	1923 4 1	..	..	28 11 0	..	1951 15 1	1690 17 1	90 3 4	1781 0 5
1886	1703 17 0	..	105 8 2	88 14 6	..	1897 19 8	1750 0 0	175 8 8	1925 8 8
1887	1778 9 3	..	15 1 4	51 0 6	2 3 4	1846 14 5	1410 0 0	141 4 10	1551 4 10
1888	1749 6 9	..	..	30 10 0	..	1779 16 9	1322 0 6	278 6 0	1600 6 6
	44,044 16 7	1841 4 5	326 5 9	1485 9 2†	284 6 5	47,982 2 4	44,747 15 0	2965 5 4	47,713 0 4

* Includes balances from Rabbit Trusts, £103 15s. 10d.

† Includes Fines under Rabbit Act and Californian Thistle Act.

J. E. PACKER, *Under Treasurer.*

Treasury, 6th June, 1889.