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Revenue DEPARTMENT.

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Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department, 1st June 1866.

No. 118. Read the following Memorandum from the Officiating Principal Inspector General, Medical Department, dated Fort Saint George, 19th May 1866, No. 177 :—

From the General Superintendent of Vaccination, to the Secretary to the Principal Inspector General, Medical Department, dated Ootacamund, 15th May 1866, No. 241.

I have the honor to forward, for submission to the Principal Inspector General, a report on some forms of cattle disease I found prevalent on the Shevaroy Hills, during the month of April last.

Remarks on Cattle Disease, as seen at Nagalore and Yercaud, on the Shevaroy Hills, during the month of April 1866.

1. It happened that a pestilential outbreak occurred among some herds of cattle at Nagalore on the Shevaroys, and being myself in the neighbourhood at the time, on a temporary visit, during the Easter vacation, and having heard so much lately of the notorious cattle murrain that has been raging for sometime in England, I was led to take an interest in the subject; and finding further, on enquiry amongst the natives. that the term *Ummay*, or small-pox, was given to this disease by them, I became curious to learn its precise nature, and determined to embrace this opportunity of investigating it.

2. Previous to seeing the disease myself, I got the best account of it from the native herdsmen, or Malayalees, as they are called, from several of whom I elicited information ; their description of it agreed singularly even to details. It may be briefly stated as follows :—

3. The animals, they said, were first attacked with a strong fever, which usually lasts three days; the coat becomes rough and stares ; a few pimples now appear, and then a violent diarrhœa sets in, which destroys the animal generally between the fifth and ninth days. The purging, apparently the most peculiar feature of the disease, consists in the earlier stages of a greenish, offensive smelling liquid, which, the herdsmen remark, is ejected from the anus with some force ; in the course of from 48 to 72 hours the dejections become extremely fœtid, and assume a darkish or bloody color ; as the disease advances, tubular casts of mucous membrane are passed, which the natives imagine to be portions of the gut itself, for so they described it. When once the motions are noticed becoming dark and bloody, they abandon all hope of the animal's recovery.

4. The first opportunity I had of witnessing this disease, for myself, happened on the 2nd of April, when hearing from Captain Short that his cattle at Nagalore were attacked, and that twenty of them had already died from it, I proceeded thither in company with that gentleman.

5. The first objects that met our eyes on arrival at the cowshed were two animals lying dead ; one a two-year bull, the other a female, about eighteen months old, and lying almost ' cheek by jowl ;' with these carcases were two tender aged calves, neither of them more than a fortnight old. Having some vaccine lymph at hand, it occurred to me to try what effect vaccination would have, and with this object in view, I then and there inoculated these two calves, taking the virus from the arm of a subject. The effect of this procedure will be noticed in a subsequent part of this paper.

6. I now had the bodies of the dead animals removed to the shade of a neighbouring tree, and commenced a post mortem inspection, which was performed ' secundem artem' in the presence of Captain Short. The appearances observed were as follow :—

I. *Carcase of a two-year old bull.*—Carcase emaciated, with abdomen immensely distended (tympanitic), eyes glassy, lids open, tongue hanging out, throat swollen ; passing the hand over the skin it imparted a roughness to the feel, as if small grits were beneath it ; about the lower part of the abdomen, groins, and inner parts of thighs, patches of discoloration or ecchymosis of a crescentic shape were observed, and adhering about the anus and tail was some liquid fæces, indicating

that the animal had suffered from diarrhœa. On flaying the skin, I was surprised to see the great vascular turgescence not only of the skin, but of the subcutaneous tissues also, in patches intensified to a degree such as I never remember witnessing before; holding up a portion of the flayed skin to the light these crescentic shaped patches deeply seated in the tissues were rendered vividly distinct. The mouth and tongue were of a pale anæmic appearance, the mucous lining of the larynx and windpipe was lightly injected and slightly rugose throughout, and there was considerable serous infiltration of the subcutaneous tissues and enlargement of the cervical glands.

Chest—The lungs were found emphysematous, and apparently healthy; the cavities of the heart were greatly distended with dark, jelly-like, coagulated blood.

Abdomen.—On opening this cavity a quantity of gas escaped, giving out a most offensive sickening stench; the intestines lay loose and flabby, and at first sight presented nothing of disease about them; the paunch contained some coarse stubble in an undigested state; the reticulum was half filled with a similar stuff in a much finer state of disintegration; this organ when emptied of its contents and washed, presented an inflamed appearance about the central part of its mucuous lining; on scraping away the superficial layer of epithelium with the back of the knife, the membrane was found intensely red; this redness existed in an exaggerated degree in the third stomach or omasum, which was firmly contracted over some dry, hard, caked mass of food; in the obomasum or fourth stomach a quantity of bilious stinking fluid was found; the malodor emitted on opening this portion of the viscera, was extreme and the mucous membrane of this organ was most deeply red and vascular, evidently from extravasation of blood between its tissues. There was also more or less congestion of the mucous membrane throughout the small intestines, more especially in the ileum, which was interspersed with claret-colored patches, visible externally, while its interior presented the same infiltrated appearance, but nowhere could I detect any ulceration. The liver had a somewhat darker appearance than natural, and the gall bladder was distended to a full size goose's egg, with green viscid bile. Urinary bladder contracted and empty. I regretted much that I had no facilities for examining the nervous system.

Carcase No. II.—This carcase, as already stated, is that of a cow-calf, with emaciated trunk and distended abdomen. When the carcase was first seen in the *puttee* or shed, the head and neck were found doubled under it; the external surface presented much the same appearance as that detailed in the case above, the skin and subcutaneous tissues in this carcase also were remarkably congested.

Abdomen—A similar stinking fœtor was given off on opening this cavity; the paunch was half filled with broken coarse grass, and there was slight turgescence of the mucous membrane; the reticulum was nearly empty, and the mucous membrane in parts could be peeled off with the greatest facility by the fingers, leaving behind an intense redness of the substance below; the omasum contained some offensive pulpy mass of a palish green color, with patches of congestion interspersed over the viscus; the obomasum had a quantity of claret-colored stinking fluid of a sizey consistence, which exhibited indications of containing a mixture of grumous blood. Several feet of the lower portion of the small intestines were of a bright glossy color externally, while the mucous membrane internally gave indications of profuse infiltration of blood; the gut itself contained some claret-colored stinking fæces; the liver and gall bladder were natural; the urinary bladder empty and contracted. With these exceptions all the other viscera were apparently healthy, but looking blanched.

7. Having completed this work, I proceeded next to examine the herd, which comprised 80 animals, among them I detected two cows that were evidently ill. One a light-red, aged cow, was then in a high state of fever, with a full excited pulse, dry hot skin, roughish coat, weeping of the eyes, and dry nose; mouth hot and of a peculiar yellow color, with two large ulcers at the point of junction between the mucous membrane and skin on either side; the animal itself appeared dull and loathe to move.

8. A white, aged cow, greatly emaciated, weeping profusely from eyes and nose; that from the latter glary; mucous membrane of the mouth was abraded on either side forming oval patches;

skin dry, some heaving of the sides; pulse feeble, state of bowels not known. With these exceptions the herd was looking well, though weakly and emaciated.

9. We then proceeded to the "Stanmore" Estate, the property of the Honorable Mr. Norton, where I learnt that a larger mortality had occurred. We were met by Mr. Fairweather, the Superintendent in charge. who at once sent for the herd of cattle belonging to the estate, and among them a bull and a cow were found tainted, as indicated by the following appearances:—

I. A greyish-white, aged bull, had a dull heavy look, and shewed disinclination to motion; heaving of the flanks, profuse weeping of the eyes, a ropy mucous hanging about the nostrils and mouth; the latter was hot and its mucous membrane presented a worm-eaten appearance. When the animal was thrown for examination, he could not be roused up again for awhile, and seemed to prefer the prostrate position; pulse small, but imparts a wiry feel to the finger along the inner part of the arm. On passing the hand quickly over the naked parts of the skin about the lower part of the abdomen, inner side of thighs, &c., a rough sensation was felt, but no eruption of any kind could be seen. (The rough feeling of the skin noticed at the post portem examinations was probably caused by a congested condition of the cutaneous vessels.) A reddish blush or tinge was also observable in some parts of this animal.

II. A greyish-white, aged cow, extremely attenuated and enfeebled; no weeping from the eyes, nose, or mouth, no ulceration in the latter, but there is heat and dryness; coat staring and rough to the feel; pulse scarcely perceptible, action of the heart feeble; there are no indications of the presence of diarrhœa. The seventy other head of cattle comprising the herd though in lean condition, were healthy.

10. *7th April*.—Visited Nagalore again this morning, found the vaccinated calves doing well; the two sick animals were better, in fact approaching convalescence; no fresh cases could be detected among this herd. On the "Stanmore" Estate the cow noticed as being ill at my last visit is now dead; the bull better, but there is still some weeping of the eyes, hot mouth, and a couple of well defined ulcers in the mucous membrane of the lower jaw under the tongue; pulse of tolerable strength. Two fresh cases noticed to-day, both aged cows, with well-marked fever, dull watery moderately strong.

11. *19th April*.—No fresh cases have occurred either on Captain Short's or the "Stanmore" Estate; the sick cattle are doing well, and I have reason to believe that the disease has now been got rid of; the vaccinated calves continue in health. I have asked Captain Short to watch them eyes; further.

12. From such opportunities as I had of seeing this disease, and the appearances brought to light by the post mortem examinations, I am inclined to the belief that it is essentially an eruptive fever, allied to small-pox, and closely resembling the great cattle plague, known under the name of *Rinderpest*, which the English periodicals have made familiar to every one. The Malayalies occupying villages in the vicinity of the estates where I had an opportunity of observing the disease sustained, I am told, the greatest loss of cattle from it Among Captain Short's herd of 80, there were 22 deaths, giving 27½ per cent. of fatality. On Mr. Norton's estate, the herd comprised 103, and there were 33 deaths, or a per-centage of 32·03. Native herdsmen though seemingly aware of the infectious nature of the disease never dream of isolating the tainted from the sound cattle; on the contrary, they still continue their well known reckless practice of huddling them promiscuously together in small ill-ventilated pens or byers, reeking with filth and foul effluvia, is it a wonder then that the disease should disseminate itself with cholera-like rapidity from herd to herd, destroying the cattle in vast numbers?

13. Endeavouring to trace out the cause of this disease, I found that it primarily broke out at the village of Nagalore, from whence it spread to two other hamlets in the vicinity, and lastly attacked Captain Short's and Mr. Norton's cattle. The fact that the pasturage ground where the disease originated was common to all these localities, easily accounted for its spreading among these different herds; but how it first began at Nagalore I was unable to trace satisfactorily. This would

no doubt prove an interesting question to determine, but the time and means at my disposal were inadequate for this purpose.

Treatment.—I did not pursue any particular plan of treatment, but merely made general suggestions, such as exclusive segregation of the infected cattle, attention to cleanliness and to the flood of the animals; the sick cattle I recommended being put on a more liberal allowance of fodder, and congee made of cholum or raggee. I am of opinion that much benefit would be derived from the administration of stimulants. The weather which had hitherto been hot with no rain improved somewhat about this time. On the night of the 2nd of April we had a smart shower, followed by another on the 3rd, accompanied by a slight thunder storm, which tended to cool the atmospheric temperature very much. This favorable change in the weather, I am of opinion, materially assisted in putting out the disease.

14. Simultaneously with this outbreak at Nagalore, one of a different type occurred at Yercaud, among a herd of cattle owned by Messrs. Lecot & Co. Through the kindness of J. Lemesle, Esq., I was afforded an opportunity of inspecting the carcase of an animal that had died from this disease, as well as several cattle whilst suffering from it. The post mortem examination which I conducted on the 11th April, in the presence of Mr. Lemesle, revealed the following morbid appearances,

The carcase was that of an aged cow, greatly emaciated, but in all other respects looking natural externally. On laying open the visceral cavities, the appearances indicating disease were found chiefly in the chest. The base of each lung was occupied by a large *acephalocystis* about the size of a man's double fist, imbedded deeply in the substance of each organ; besides these, attached along the free margin of each lung were five or six cystic tumors, varying in size from a marble to a large hen's egg, these cysts were found filled with a transparent fluid, with the exception of the larger one in the right lobe, the fluid in which was tinged yellow; the fluid itself was contained in a distinct pellucid membrane, fitting close and lying free in the cavern which each cyst had hollowed out for itself, in the substance of the lung, thus destroying at least two-thirds of the tissue composing the organ. In the abdominal cavity no morbid indications were detected with the exception of two small superficial hydatid cysts, which were found on the convex surface of the liver, these cysts were from three to four inches apart.

15. Notwithstanding the extensive mischief, it is seen the presence of these hydatids cause to the pulmonary organs, the only indications denoting their existence during life time are great debility, coldness of the extremities, tremor, loss of appetite, and constipation. Cough or dyspnœa are never observed. The two animals that I myself inspected suffering from this disease presented much the same appearances, viz., extreme emaciation and general debility, cold extremities and fluttering pulse. I learned that ten animals out of a herd of 130 head of cattle died from this disease on these hills. This Entozoóns disease prevailed on all the estates at Yercaud, with one exception, which I shall notice hereafter. As to the cause of this disease, I could come to but one conclusion, viz., a deficient supply of nourishment; for the very appearance of the cattle indicated impairment of vital power from starvation, and the best remedy I found was a liberal allowance of fodder and grain food. The mortality from this disease, I am told, was greater on some of the other estates than on that of Messrs. Lecot & Co. Planters and other cattle proprietors on these hills suffer under difficulties as to cattle fodder during the hot months, viz., February, March and April; they make no provision for this time of the year, nor do any maintain pasturage grounds for their cattle, every piece of spare or suitable land being sooner taken up for coffee planting, and what makes matters worse great attention being paid to cleanliness, rank vegetation and weeds of every kind that might afford nourishment to cattle are destroyed, and thus the poor animals are literally starved. Let loose at daylight after passing the night in their own filth, they stray over great distances, vainly endeavouring to pick up a sufficient quantity of pasture, but as during this season there prevails a universal drought so that scarcely a blade of grass is to be seen nor any stubble except in inaccessible localities, it is very little indeed that these unfortunate herds can pick up in the course of the day: in the evening they are driven back

to their byres in almost the same starving condition as they left it in the morning. A few planters are in the habit of sending out coolies to fetch forage, consisting of hill or thatch grass, which is spread out before these famished brutes ere they are shut up for the night, and is greedily devoured by them; but what are a few bundles among a herd of starving animals? Many of the planters, however, do nothing more than allow their cattle to graze and pick up what they best can, which in this season amounts to positively starving them, and that such is really the case is demonstrated by the miserably poor skin-and-bone condition of their cattle.

16. Finding such a lamentable state of things, and being fully convinced that the Entozóons disease that I have described owed its origin entirely to this cause, I was led to consider whether these evils could not be remedied by substituting in the place of grass some other substance as fodder for the cattle during those months, when all the pasturages become parched and dried up, and having observed on one occasion some pack-bullocks greedily devouring the dried husks of the coffee cherry, the idea of using this substance for this purpose occurred to my mind. These husks, in my opinion, would make excellent fodder for cattle, the pulp contained in them, it is well known, is rich in saccharine and gummy matters, which must render them highly nutritive, and on the score of abundance of supply and cheapness there is no material on these hills that could be compared to them. Every maund of 25 lbs of coffee bean, it is calculated, will yield exactly double that quantity of husks, so that a very large supply must at all times be available, and if providently stored up and issued out to the cattle at the rate of five or six pounds daily, I conceive that the result would be of benefit to the planter as well as to his cattle. Not only would he thus have excellent fodder, sufficient to maintain his herd in health and condition, during the trying period of the year; but he would also not lose the husks for manuring purposes, for by their transition through the living laboratory of the cow, they become transformed into a superior kind of manure in the dung of the animal, much more so than they can ever become by the simple process they undergo in the manure pit, securing thereby a double advantage. As it is, these husks are valueless to the planter except as manure. It is possible that some cattle may refuse to eat them at first, which need cause no surprise, for it is known that cattle refuse horse-gram and other grain when not accusomed to their use, but a little coaxing very soon overcomes this dislike. It would be necessary, perhaps, to steep the husks in water to soften them, preparatory to issuing to the cattle. Unfortunately the coffee husks have already been transferred to the manure pit this year, so that a trial cannot be made until next. One or two gentlemen, to whom I made these suggestions, have promised to act up to them; considering that it is during the dry season only that the coffee cherry is harvested, dried, and husked, it is rather surprising that this idea of using the husks as fodder was never thought of by any of the planters.

17. During the prevalence of the Entozoóns disease at Yercaud, I stated that there was one exception, this I will mention now more particularly. Not far from Messrs. Lecot & Co.'s plantations there existed a herd of cattle belonging to a gentleman, who owned a neighbouring estate; this herd, comprising some 70 or 80 head of cattle (chiefly cows and buffaloes), did not suffer in the least from the epidemic at any time that it was prevailing; on the contrary, the whole herd enjoyed remarkably good health, and kept in tolerable condition; while the cattle around were sickening one after one and dying fast. On closely investigating this singular immunity, I found that these animals were in the habit of daily feeding on large quantities of orange leaves, not only did they greedily devour every dry or withered leaf shed from the trees; but they also had access to the lower branches of the trees themselves which they pilfered freely of their foliage. The trees, of which there were a large number, comprised the sweet and bitter variety of oranges, lime, and pomeloes. I myself had often been amused watching this herd, as soon as let loose in the morning straying into the plantation, where they would be seen daily collected in numbers round the orange trees, some eagerly cropping the leaves within reach from the trees, and others picking up those that had fallen. This habit seemed to have attracted the attention of the owner also, who finding that his trees did not suffer any from this clipping process they were thus daily subjected to, while the cattle themselves seemed to improve by it, did not molest the animals in their depradatory prac-

tice. Now, it is well known that the leaves of the orange tribe abound in a volatile fragrant oil, and I am of opinion that to this food alone they owed their immunity from the Entozoöns pest from which the cattle on the other estates suffered so largely.

Cow sheds or byres.—There may be some excuse in the case of poor ignorant natives not attending to cattle hygienes, but gentlemen who expect, and often do realize, not only a competence but a fortune from planting operations, and who are obliged to keep cattle on their estates on account of the manure they yield, should not allow the poor unfortunate brutes to die of starvation, for which there can be no excuse, and in this matter instead of being a guide to the natives they prefer to be guided by them. The cowhouses at present in use on these hills consist of a large thatched shed, and a walled enclosure termed a *puttee*. The shed frequently has a small wattled partition at one end to enclose the calves; the floor is unmade, and on it dung and urine accumulate from one year's end to the other, or when it perhaps suits the convenience of the planter to remove to the plantation. In no instance is the cowshed cleaned oftener than once in a fortnight, and this is done by only some one or two planters, so that the cow house is literally the dung pit also; frequently, to absorb the moisture caused by the urine, not only the coffee cherry husks but ferns and leaves of all kinds are thrown in, which mixing up with the urine and dung is constantly undergoing putrefaction, and emanating the most foul effluvia, and it is on this mass of putridity that these starved cattle stand and lie down. The legs of the animals are submerged up to their fetlocks in dry weather, and in the rainy season up to their knees, in the pool of filth that constantly cover the floor. The wonder is how under these circumstances the cattle do not perish in greater numbers than they do. Very little consideration on the part of the planter would tend to mitigate these evils, and conduce to the health and comfort of his cattle. All that would be necessary, is that the floor of the cowsheds should be well faced with stone and chunam, to render it water-tight, and that both of the shed and puttee should slope towards the centre, so as to form a shallow drain, which would conduct away all the urine as soon as passed to a pucka-built cistern, which may be placed outside immediately adjoining the enclosure, which should also be covered in with thatch, grass, or other material; the contents of the cowshed should be daily swept up and cast into the manure pit; fresh leaves or ferns may be added, if thought necessary, for the animals to lie on. Such measures would not only secure cleanliness and dryness of the flooring, but also would preserve the air in a sweet condition; by covering the manure pit, sun and rain will be kept out, and in the end not only excellent manure obtained but the cattle likewise be maintained in health and comfort throughout the year.

OOTACAMUND,
15*th May* 1866.

(Signed) J. SHORTT, M. D., *Asst. Surgeon, General Superintendant of Vaccination.*

Forwarded to the Chief Secretary for the information of Government. To be returned when no longer required.

(Signed) J. SHAW,
Offg. Prin. Inspector General, Medical Department.

Transferred to the Revenue Department.

(Signed) J. GROSE,
Under Secretary to Government.

22*nd May* 1866.

No. 119.

Miscellaneous.

ORDER THEREON, 1st June 1866, No. 1,347.

1. The Officiating Principal Inspector General will convey the acknowledgments of Government to Dr. Shortt for his very valuable report, which will be communicated to Mr. Thacker, and laid on the Editor's table.

2. The Governor in Council trusts that Dr. Shortt's example will be followed by other Medical Officers, as opportunities offer.

(True Extract.)

Secretary to Government.

To the Officiating Principal Inspector General, Medical Department.
" J. Thacker, Esq.
" the Editor's table.

Exd. S. T. Augustin.

Dr. 1847. 5th

The U.S. Pris: Surgeon
Genl will convey the acknow-
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N. L. D.

Tel. Russell 66.

Genl Taylor's Head Quarters
Camargo
2 July 1847

Dear Sir

I have the honor to acknowledge the receipt of your communication of the 14th ult. enclosing a copy of a letter addressed to you by Dr. Thacker, Editor of the Louisville Medical Journal, and to inform you that I have forwarded a copy of the same to the Surgeon General of the Army, for his information.

I am Sir
Very Respectfully
Your Obt. Servt.
R. Jones
Adjt. Genl.

Dr. N. Davis
Surgeon U.S. Army
Louisville
Ky.