

lay down soon afterwards. Her nose was dry, and the ears were slightly drooping. No rumination was noticed. When forced to rise she reluctantly did so, and when on her legs did not stretch herself. She was, however, subsequently noted to lick herself on the sides and in the groins, and she was swishing flies with her tail. 9 a.m.: The heifer was noted to be lying down. After 9 a.m. she was seen ruminating and somewhat brighter, but remained in recumbent position, and when forced to rise behaved as in the morning, and soon went down again. After rising this time she stretched herself.

1 p.m.: The heifer was turned out with the herd. She was, however, not able to follow the herd, but lagged behind, and remained near the kraal.

2.30 p.m.: The heifer walked a little distance and then lay down. When forced, she rose, and when up she did not stretch herself. She then grazed a little, but soon went down again. Her walk was sluggish and somewhat clumsy. Her eyes were fairly bright; when standing she licked the groins and udder.

3.20 p.m.: The heifer was down again. When approached she rose by herself. She did not stretch herself after rising. She grazed for a short while before lying down again. She was ruminating.

Diagnosis: Lamsiekte.

6 p.m.: The heifer was placed in the stable. She was standing for some time and feeding on lucerne hay. The nostrils appeared somewhat crusted.

14.3.19: 6.20 a.m.: The heifer was in recumbent position. She rose as soon as approached, but did not stretch herself. Her walk was clumsy, and she soon lay down again. The nostrils were crusted. During the course of the morning, at 9 and 11 o'clock, and at 1 o'clock in the afternoon, the heifer was examined, and each time she was found in the sterno-costal position. The temperament of this animal since illness had completely altered. A lively, agile, almost aggressive animal, had changed to a very quiet one that apparently only cared to be left alone. She fed and ruminated at times. When standing, her movement was sluggish and somewhat heavy, and the position of the forelegs was slightly in abduction, noticeably from the shoulder downwards. To-day she was not sent out with the grazing cattle, but turned into the hospital camp. In the afternoon (4 o'clock) she was seen grazing for a while, but went down again soon afterwards.

15.3.19: During the night the heifer had walked a short distance into the veld, where she was found in recumbent position. When approached she rose willingly, and was easily brought back to the kraal. The walk was still clumsy. She appeared to be somewhat brighter, however. The movements of the tail were more active than on the previous days, the tail being flexed when swished. On arrival at the kraal she immediately lay down, and remained in sterno-costal position for some time, and ruminated normally. In this position, with one leg stretched forward, she gave the impression of a resting, healthy animal. In the afternoon at 5 o'clock the heifer was decidedly better. She moved about fairly freely in the paddock, and was feeding as well. The impaired action of the front quarter was still present. She went down again after a short time.

16.3.19: The heifer had been in the paddock all night long. When seen this morning she was in recumbent position. She walked clumsily to the kraal, and immediately lay down in sterno-costal position. When approached she rose, but the rising appeared to be somewhat difficult. She soon went down again; when now forced to rise, the difficulty in rising was even more accentuated, particularly the lifting of the hindquarters; the extension of the hind legs was markedly prolonged, and for a moment it was doubtful whether she would not go down again.

17.3.19: 6.10 a.m.: The heifer had moved during the night into an obviously uncomfortable place under the railing. She was in sterno-costal position. When forced to move, she made an attempt to do so, but was unable to rise. She was able to flex and draw in the hind legs, but could not lift the hindquarters. She was moved into a more comfortable position. Subsequently she was seen to pick some food. The head was carried well. At noon she had again shifted to another place. She was ruminating.

At 6 p.m. the heifer was still in the same position. She had not been up during the day. She still carried head and neck well. She had been feeding and ruminating. Faeces were passed. They were small, dry, and spiral-shaped.

18.3.19: 6.20 a.m.: During the night the heifer had again moved to another place. She was found in sterno-costal position, carrying the head well and ruminating. No attempt was made to rise. A small quantity of spiral-shaped faeces had been passed. At 10 a.m. she was found in half sterno-costal position with the head stretched out sideways. She had again shifted to another place, apparently in an attempt to rise. After being placed in a better position, she

carried the neck in a somewhat flexed manner (resembling torticollis), and was unable to stretch it completely. She was noted to pick up lucerne hay placed in front of her. At 5 p.m. the heifer was still in the same place as in the morning; she had apparently given up all attempts to rise since she was placed in this position. She was seen to void urine. She ate some lucerne. Loss of condition had become noticeable.

19.3.19: At 6.20 a.m. the heifer was in sterno-costal position and fairly bright, and she was feeding slowly. The skin was somewhat cool; she voided urine. The faeces were somewhat dry, spiral-shaped, and covered with mucus. At 3 p.m. the heifer was seen placing the head on the ground. She lifted it when approached. The loss of condition had become even more noticeable; the gloss and sleekness of the coat had disappeared. The skin and horns were warmer than in the morning.

20.3.19: The heifer had not moved during the night. She was fairly bright. During the examination she passed urine. At 3 p.m. she was still in the same position; she had a warm skin and was fairly bright and attentive. No attempt to move had been made. The faeces were somewhat dry, small, and spiral-shaped. During the time of examination no feeding or ruminating had been noticed.

21.3.19: 6.10 a.m.: During the night the heifer had changed her position somewhat. She was feeding and fairly bright. The skin was warm; the coat was somewhat rough. The faeces were dry and spiral-shaped. Loss of condition had become more marked.

22.3.19: The heifer was found in the same position where left last night. She was still fairly bright, carrying the head well; her skin was somewhat cool. Her flanks were fallen in. The coat was not glossy.

23.3.19: The heifer was found in sterno-costal position with the hind legs somewhat pushed backwards. She was ruminating. She passed black, dry, spiral-shaped faeces. Loss of condition was very conspicuous. All day long the heifer was in sterno-costal position; the flexed near hind leg was pushed backwards, and apparently she was incapable of pulling it in. At times she was noted to double her head back on to the left shoulder. She was observed to drink water quite normally. She picked food and masticated it, and was subsequently noted to ruminate in a normal manner. The coat had a rough appearance. The faeces were dry. An attempt was made to lift her on to her feet, but she did not appear to be able to place the legs in position, and was unable to support herself after they had been placed in position. In the evening she was still found in sterno-costal position and feeding slowly. She had again passed small, spiral-shaped faeces.

24.3.19: The heifer was found in the same place where left last night, and also in the same position. She was still feeding a little. The faeces were dark and dry. In the afternoon she was observed to drink water without difficulty out of a bucket. Later she was found with the head doubled back on to the shoulder.

25.3.19: The heifer was in sterno-costal position and fairly bright, carrying neck and head well. The left foreleg was stretched forward. Another attempt was made to lift her on to her feet. She was able to maintain herself a little while, and then suddenly sagged in. The faeces were blackish, spiral-shaped, and covered with mucus. In the afternoon she was still found in the same position with one leg stretched out forwards. She carried the head well, and was noted to poke a calf that happened to come near her. The black faeces were full of mucus.

26.3.19: During the night the heifer had shifted slightly from her former place, but was still in sterno-costal position with right front leg stretched forwards and flexed in the fetlock, the dorsum of which showed decubitus. She carried the head well and pricked the ears. She was feeding slowly.

27.3.19: The heifer maintained the sterno-costal position. The right front leg was stretched forward. She carried neck and head well, and was feeding slowly.

28.3.19: The heifer still maintained the sterno-costal position, and the right front leg was stretched forward. She carried neck and head well, and was feeding slowly. The faeces were somewhat softer, probably due to green Kikuyu grass supplied during the last few days.

29.3.19: The heifer was in exactly the same position as yesterday. She was heard grinding the teeth. The faeces were somewhat soft.

30.3.19: During the night the heifer had moved forward, apparently in an attempt to rise; she was still in sterno-costal position. She was not so bright as usual, although she carried neck and head well. The faeces were soft. She was noted to pass urine normally.

31.3.19: The heifer had again shifted during the night and pushed forwards. She was maintaining the sterno-costal position. She carried the neck and head well, and was ruminating. An attempt was made to lift her. She endeavoured to stand, and succeeded in doing so on her hind legs, but not on the front legs. She sagged in as soon as support was withdrawn. Both fetlock and knee of left leg showed decubitus. Loss of condition was very striking.

1.4.19: Since yesterday the heifer had again moved, and was now in left sterno-costal position. She was ruminating, and carried her head and neck well; the faeces were soft. An attempt was made to lift her, and she was able to stand for a while, but there appeared to be considerable difficulty in maintaining the front legs stretched out. They were slightly bent at the knee, the heifer standing on the tip of the toes. Immediately after she had taken up this position she voided normal urine. Subsequently she tried to walk, and then suddenly collapsed. She was then put in left sterno-costal position. The integument of the right hip appeared to be bruised since the animal had been lying on this side for some time.

2.4.19: The heifer was found in sterno-costal position and was ruminating. Occasional attempts were made to move the foreleg, but these were not successful. When raised, she was able to stand for a while with back arched. She then tried to move the legs, but had great difficulty in doing so, and in an attempt to turn she suddenly dropped into sterno-costal position, which she retained. She was drinking water normally.

3.4.19: The heifer was found in the position in which she was left yesterday. She was fairly bright. She was lifted on to the feet, and was able to stand after support was withdrawn; with a little assistance she managed to turn. There was a very marked stiffness in the forelegs which could hardly be moved. Decubitus was noted on knee and elbow. After a while the heifer tried to lie down, and in doing so she actually fell into sterno-costal position. Subsequently the heifer was noted to have moved from her former place again. She was ruminating.

4.4.19: The heifer was found in sterno-costal position, and had a bright appearance. She was again lifted on to her feet, and was able to stand. She remained standing, and subsequently stood with the back arched. The front legs appeared to be cramped, and when moved they did so spasmodically. She walked a few steps and apparently was looking for a place to lie down again. In an attempt to do so, she fell head first, knocking the mandible on the floor.

5.4.19: To-day the heifer was again lying in the sterno-costal position. She was bright and ruminating. After she had been put on her feet she was able to stand. With a little assistance she was able to turn. Shortly afterwards she was looking for a place to lie down. She was observed to feed and drink normally. A further loss of condition had become distinctly noticeable. Two more attempts to put her on her feet were made in the afternoon, and both times the heifer was able to stand. After the first lift she tried to move forward, and in doing so she dropped into the sterno-costal position. Soon after the second lift she attempted to lie down, but suddenly sagged in and fell on the side of the head.

6.4.19: The heifer had remained in the same place and position she was left in the previous night, and was ruminating. The faeces were unusually copious and soft. She was lifted again, and was able to stand, but lay down soon afterwards. In the afternoon she was noticed to be feeding. The faeces were again unusually copious and very soft.

7.4.19: The heifer was in the same position as last night. Rumination was not observed. She tried to take in some food, the prehension of which was carried out in a slow manner. She was twice put on her feet, but every time she immediately made arrangements to lie down. In so doing she was not able to put the hind legs sufficiently forward to take the weight of the body and to release the front legs, but she dropped almost suddenly, and landed first on the jaw. She appeared to be very weak. Of late she had decidedly lost condition rapidly. The head was still carried well, though the eyes at times were staring. The faeces were copious and soft.

8.4.19: The heifer was found in recumbent position. When lifted, she was unable to stand, and dropped as soon as released. Decubitus was noted on almost all joints of the legs; the surface of the wounds was dry and leathery.

9.4.19: At times the heifer was noted to stretch the head forwards from the sterno-costal position and to place the mandible on the floor, so as to rest the head. When examined in the afternoon she was noted to repeat this movement frequently. She looked decidedly distressed. The respiration was

of the abdominal type, and was increased, and a faint groaning noise was heard; the wings of the nostrils were moving with every inspiration; there was also an increased mucous discharge in the nostrils. The faeces were very soft. The heifer had not been eating in the morning. She was lifted, but was unable to rise. Some drops of blood were noted to escape from the nostrils.

It was evident that pulmonary lesions were present, and the diagnosis of a traumatic pneumonia was suggested.

10.4.19: The heifer was found in the same position as yesterday, and was somewhat better in appearance. The laboured respiration had disappeared. Attempts to keep her on her feet after lifting failed again.

11.4.19: The heifer was lying in sterno-costal position, with the head stretched out. She appeared very weak. She did not feed this morning. She died about noon.

Temperature Record: The temperature at the beginning of the disease was normal until the 24.3.19 and did not vary more than about 1° F. from morning to evening, averaging about 101° F. From 25.3.19 until 5.4.19 the evening exacerbations were slightly higher; they averaged about 102.2° F. with an exacerbation to 103.2° F. on 3.4.19, followed by a remission to 100.2° F. the next day and a distinct rise during the next few days until 150.6° F. was reached. The temperature subsequently dropped slightly; it followed a continuous curve averaging about 104° F; it stood at 103.2° F. on the morning of the day when she died. A blood-smear made on 17.3.19 was negative.

Post-mortem Report 4181: Heifer about 3 years old. The autopsy was made four hours after death. Rigor mortis was not complete. The condition was fair. The integument showed fresh and old decubitus at the fetlocks, hocks, knees, and elbows. The visible mucous membranes appeared somewhat pale. The abdomen was somewhat relaxed. The flesh had a slightly dry and pale appearance. The panniculum adiposum of the subcutaneous tissues still contained some fat, it had a slight yellow tinge. Of the superficial lymph nodes the cervical and the axillary were much enlarged and hæmorrhagic; the subiliac was normal. The lymphatic glands of the head showed no changes. The tongue and oral cavity showed no changes. The mucous membrane of the pharynx was bluish discoloured. In the left recessus piriformis was a small superficial ulcer, in size that of a bean; the oesophagus was normal. The peritoneal cavity showed no foreign contents; the serosa was smooth and glistening. The right pleural cavities contained a little turbid fluid. The eparterial lobe was attached to the pleura of the right cupola and likewise the left apex to the pleura of the left cupola; both could easily be detached. The costal pleura of those parts was roughened and injected. On the pleura of the intercostal spaces was noted a very fine tufted granulative tissue forming narrow streaks. The mediastinal lymph nodes were enlarged and rich in blood. The pulmonary arteries and veins showed no changes in the intima. The bronchial glands were enlarged and moist. The lungs were somewhat inflated. The eparterial lobe, the right middle lobe, and portion of the left basal lobe showed consolidated foci. The pleura over these portions was opaque and injected. The greater portion of the lung tissue was elastic. On cutting into the foci, cavities were found which contained a cheesy substance; they reached in size about that of a hazelnut to a walnut; the surrounding parenchyma was solidified and contained well-marked necrotic foci. A great portion of the lung tissue was collapsed and rich in liquid. On both ligamenta vocalia a small superficial ulcer, in size about that of a pea, was found. The mucosa of the epiglottis and of the larynx was diffusely reddened. The trachea contained froth; in the bronchi was a fibrinous exudate which plugged the finer lumens. The others were filled with blood coagula.

The bronchial mucosa was diffusely reddened; echymoses and petechiae arranged in streaks and patches were present. The pericardium contained no liquid; the parietal serosa showed a diffusely injected area; the corresponding pleura was opaque and injected. In the right ventricle and atrium of the heart was a well-formed blood-clot. A smaller one was present in the left ventricle. The endocardium was somewhat pale; numerous small white points were present, sprinkled over the endocardium. The valvæ were normal. The myocardium was slightly opaque. The epicardium contained some echymoses in the right longitudinal groove. The intima of the coronary arteries and of the vena magna showed no changes. The aorta was elastic and the intima smooth. The periportal lymph nodes were of normal size and aspect. The liver appeared enlarged. The capsule was smooth and

glistening. The parenchyma was reddish brown and the consistence was somewhat hard. The gall-bladder was distended with a brownish viscous bile; the ductus choledochus was open. The spleen (42 by 15) was slightly tumefied; the capsule was somewhat tense; the pulpa was red brown and slightly softened. The trabeculae were indistinct; the follicles were distinctly enlarged. The suprarenal glands were distinctly yellow in the cortex. The adipose capsule of the kidney was fairly rich in fat; the fibrous capsule was easily stripped off; the kidney appeared pale; the intermediary zone was reddish, and the medulla white. The rumen contained fairly dry ingesta. The reticulum contained soft ingesta and three pieces of bones. The omasum was half full of fairly soft ingesta; the abomasum contained liquid ingesta; the mucosa showed no changes. The mucosa of the duodenum was slightly reddened, likewise that of the jejunum; that of the ileum was blackish in parts; caecum and colon had a normal appearance, and the mucosa of the rectal ampulla was somewhat reddened. A fair amount of fat was still present in the mesentery. The lymph nodes were conspicuously small, dry, and some on section contained cysts filled with a dry substance. The urinary bladder was distended with clear urine; the mucosa showed no changes. A corpus luteum was present in the right ovary.

Pathological Anatomical Diagnosis: Pleuritis fibrinosa et fibrosa. Broncho-pneumonia mortificans traumatica. Bronchitis fibrinosa et hæmorrhagica. Atelectasis pulmonum. Pharyngitis et laryngitis ulcerosa. Endocarditis fibrosa disseminata. Slight tumor splenis. Cloudy degeneration of myocardium. Slight cirrhosis of the liver. Enteritis catarrhalis. Larva of pentostomium in the mesenteric glands. Decubitus. Anæmia.

Epicrisis: This heifer was noted to pick and chew rotten bones on six occasions. She developed a disease that could be identified with chronic lamsiekte, ending with death caused by an intercurrent broncho-pneumonia. The disease lasted from the 13th March, 1919, until 11th April, 1919, i.e. almost a month. Its course was a gradual evolution into a complete paralysis of the locomotor system; it was also likely that the traumatic pneumonia was a sequel to a paresis of the pharynx, although such a diagnosis was not made during life. It was most likely that the animal would have recovered if the complication had not occurred. This case resembled in all respects chronic lamsiekte, naturally contracted, of which farmers state that the animals remain in recumbent position for weeks, feeding most of the time, but are unable to rise; they gradually lose in condition and frequently die from mere exhaustion.

3. **YELLOW-BROWN Cow 2790.**—Arrived from Bestersput on the 29.11.16 and was placed amongst the controls. From the 25.4.18 to the 4.3.19 she was kraaled by day in the sun and grazed by night. She was submitted to the bone-eating test.

On 4.3.19 she was observed to pick a rotten bone from the trough and to chew it for at least an hour. On 5.3.19 and 6.3.19 she was tested with bleached bones and found to pick and chew bones. She was then selected as a bone-eater for the rotten bone experiment. She was noted to pick and chew rotten bones on 7.3.19, 8.3.19, 10.3.19, 11.3.19, 12.3.19, 13.3.19, and 15.3.19.

On 16.3.19 this cow was not picking bones. She had been a greedy bone-eater during the last few days and was generally a very lively animal, keeping other animals that were looking for bones away from the troughs. Soon after arrival of the herd she went down at a time when all the other animals were still standing. When forced to rise she was able to do so, but immediately went down again. When subsequently disturbed by cattle, she rose, but lay down again. She was seen to be ruminating at times. She had a generally normal appearance and took notice of the flies that were settling on her. At noon the cow went into the veld with the herd.

17.3.19: The cow returned with the cattle at 7 a.m., but as soon as she had entered the kraal she lay down. When made to rise she did so with some reluctance and without any difficulty, but soon went down again. Most of the time during the morning she was in sterno-costal position, and whenever she was made to get up she went down immediately. After a fresh supply of bones had been placed into the trough and the cow had noticed the rattling noise, she rose at once, approached the trough, sniffed at the bones, but turned away, lying down again. Subsequently she made another examination of the trough and again returned into the recumbent position. At noon she left with the herd for the veld.

18.3.19: This morning the cow returned with the herd. Her walk was distinctly affected and differed from that of other cattle by the

clumsiness of the movements, and by carrying the head low. When standing she was noticed to spread the forelegs unusually wide apart as compared to other equally heavy animals. Soon after arrival she went down and remained down; once when she was disturbed by another cow she rose, but immediately lay down again. She was noticed to be ruminating and carried the head well; she pricked the ears and was attentive; she chased the flies with the tail. Seen in this condition, she did not give the impression of being ill. At noon she again left with the herd for the veld. The case was diagnosed as a case of lamsiekte.

19.3.19: The cow returned with the herd this morning. The native herdsman stated that yesterday all afternoon she had been grazing. This morning he found her down and separated from the rest of the cattle. She showed the same clumsy gait as yesterday, carrying the head and neck fairly low. There was a marked movement of the head at every step. She lay down as soon as she had entered the kraal and remained in recumbent position most of the time, but looked bright and took notice of what happened around her. She left with the herd for the veld, but lagged behind.

20.3.19: Yesterday the cow did not reach the veld but remained near the gate of the camp and according to the native herdsman was in recumbent position practically all afternoon. After arrival in the kraal she at once went down; she rose without much difficulty when forced to do so. She left with the herd for the veld.

21.3.19: The native herdsman stated that all yesterday afternoon, after arrival in the veld, the cow was lying down and only rose to feed after sunset. She returned this morning with the herd and immediately lay down. She looked bright and carried the head well; at times she was ruminating. The walk was still peculiar and clumsy, the feet were placed somewhat apart and head and neck were carried low. She again left with the herd for the pasture.

22.3.19: The cow was reported to have been lying down yesterday afternoon and to have been grazing after sunset. She returned this morning with the herd; she still showed the clumsy walk, and when standing kept the front legs fairly wide apart. She looked empty in the flanks, and loss of condition had become noticeable.

23.3.19: This morning the cow was found lying in the veld, she returned with the herd. She was able to walk home; her gait was very clumsy and slow. She lay down immediately after arrival and remained in recumbent position all morning. She was ruminating. At noon she returned with the herd into the veld. In the afternoon she was down most of the time.

24.3.19: The cow did not return this morning and was found in recumbent position. She subsequently walked home with some difficulty, lying down occasionally; finally she reached the kraal, when she went down at once. She was seen ruminating. She was not sent out with the herd, but kept in the veld near the kraals (hospital camp). She lay down and remained down all afternoon; when forced to rise, she refused, even when the tail was severely pinched.

Examination of a blood-smear gave negative results.

25.3.19: The cow was still down this morning and did not rise when forced to do so or when pinching the tail. Subsequently, however, she rose unassisted and was noted to be grazing. In the afternoon she was again found on her feet and grazing a little, but subsequently she went down again.

26.3.19: She was found to be down this morning, but not in the same place where she was last seen the previous night. She carried her head well. In the afternoon the cow was down again, lying in the open veld away from any shade. She was unable to rise by herself, but was able to stand after she had been put on her feet. She then walked away very clumsily and grazed for a while.

27.3.19: This morning the cow was down and unable to rise. She was lifted and then slowly walked into the stable, halting at intervals. Her walk was clumsy, the legs were moved and placed in abduction.

28.3.19: The cow remained down all day yesterday and was still down this morning; she looked bright and carried head and neck well and was observed to ruminate.

29.3.19: She was found in the same position in which she was left yesterday. No faeces had been passed during the night. Subsequently she passed soft and well-formed droppings.

30.3.19: The cow was in sterno-costal position; was looking bright, and ruminating. The faeces were soft.

31.3.19: She was found lying in sterno-costal position; she was ruminating, carried the head well. She rose by herself and walked to the water-trough and drank water.

1.4.19: The cow was found in sterno-costal position, ruminating, and looking bright. She did not rise to-day.

2.4.19: The cow was in the same position as yesterday. Rumination was not noticed this morning. She drank water normally.

3.4.19: When an attempt was made this morning to make the cow stand up by pinching her tail she refused to move; subsequently she rose by herself and without any assistance. She ate and drank normally.

4.4.19: The cow was standing this morning; she did not move, however, and soon afterwards lay down again. She was feeding and drinking well.

5.4.19: The cow was up and walked about, although the gait was clumsy and slow. She walked to the water-trough to drink; she fed well. She went down and subsequently rose again without assistance. She still stood with legs spread apart.

6.4.19: The cow was down this morning, but feeding well.

7.4.19: The cow was lying in sterno-costal position and had a normal appearance. She remained in this position when approached and examined.

8.4.19: The cow was in recumbent position and did not rise when approached.

9.4.19: There were no changes to be noted in the cow this morning. In the afternoon she was standing and ruminating; she moved about fairly freely and did not show much stiffness in the forelegs.

10.4.19: This morning the cow was found lying down but looked bright and was feeding well. She was still down in the afternoon.

11.4.19: The cow was lying down but rose easily and moved about freely; some stiffness was still noticeable.

12.4.19: The cow was standing and feeding this morning. She was sent to the hospital camp and was noticed to be down a good part of the day.

13.4.19: This morning the cow was returned to her old kraal, which contained the trough with the putrid bones. She walked up to the trough, licked some of the bones, but was not noticed to pick any. She subsequently lay down. From this date the cow was sent to the veld with the herd. She had lost considerably in condition.

24.4.19: This morning the cow was turned into the bone kraal and she immediately went to the trough and picked bones and chewed them very eagerly.

25.4.19: The cow was noted to eat rotten bones after return from the veld.

26.4.19: To-day the cow together with the lot to which she belonged was submitted to the bone-craving test with sterilized bones. She was found to pick bones.

27.4.19: After arrival in the kraal the cow was noted again to pick and chew putrid bones, also on the following dates:—28.4.19, 29.4.19, 30.4.19, 1.5.19, 2.5.19, 3.5.19, 5.5.19.

7.5.19: Chewing rotten bones was again noted. This was also noticed on the 8.5.19 and 10.5.19. It was reported by the native bringing the cattle from the veld that the cow had been lagging behind. When examined she showed soiled hind legs. She was kept back and placed in the hospital camp for further observations.

11.5.19: A discharge was noted from the vagina. The sacro-sciatic ligament was relaxed, but there was very little swelling of the udder noted. The same day the cow gave birth to a full-sized, normal bull calf.

12.5.19: The udder was in full milk. Subsequently the cow was placed in a bone-meal feeding experiment.

On 13.5.19 the cow was again noted to chew rotten bones.

Temperature Records: The temperature taken during the period of observation was normal.

Epicrisis: The cow had been a greedy bone-eater from the beginning, and since she had access to the putrid bones she was noted to pick bones. She was recorded to have picked and chewed bones on eight different occasions. She developed a typical case of chronic lamsiekte of a rather mild but prolonged course, showing itself almost exclusively as a paresis of the locomotor system; the period during which the cow was unable to rise lasted for only a few days. The cow during illness was not noted to pick bones for a period

of eight days. After she had shown improvement and was again able to walk she was given access to putrid bones and she readily picked and ate again. The cow lost considerably in condition after recovery. Notwithstanding the disease she calved normally. The case is interesting from two points of view, viz.: That the cow did not lose craving for bones after recovery and that, notwithstanding repeated eating of rotten bones after recovery, she did not contract the disease for a second time. This fact may be interpreted as a tolerance to the toxin present in the rotten bones.

4. RED AND WHITE COW 2650.—Arrived from Kaffraria on the 24.5.14. Transferred to alternate feeding and grazing experiment on 22.10.16. Stabled by day in the shade and grazing by night since 20.5.18. Calved, 20.10.18. On 5.3.19 and 6.3.19 she was noticed to pick bleached bones when tested for craving. She was selected for the rotten bone experiment and was noted to pick and chew rotten bones on 7.3.19, 8.3.19, 10.3.19, 11.3.19, 12.3.19, 13.3.19, 14.3.19, 15.3.19, 16.3.19, 17.3.19, 18.3.19. On the 19th the cow was not noted to pick and eat rotten bones.

20.3.19: The cow returned with the herd this morning. She was noted to be salivating and her skin appeared somewhat lumpy over both chest walls just behind the shoulder. She soon lay down, and when forced to rise she reluctantly did so and immediately went down again. Whilst recumbent she ruminated and carried the head and neck well. When she was subsequently again disturbed she showed some difficulty in rising, the act of rising being somewhat protracted. After 10 a.m. the cow was sent out to the veld with the herd, but she did not reach the camp gate. About half way (200 yards from the kraal), she lay down. She was placed in the hospital camp for closer observation. There she lay for the greater portion of the day. Whenever forced to rise she was able to get on her feet, but went down again immediately. On the first occasion she was noted to stretch herself after rising and to pass normal faeces and urine.

The examination of a blood-smear gave negative results.

21.3.19: The cow was found in sterno-costal position this morning. Only after repeated forcing could she be induced to rise. In doing so she showed distinct difficulty and soon lay down again, remaining in the recumbent position. She was noted to ruminate and to pass normal faeces.

22.3.19: The cow was found lying stretched out on her right side this morning. During the night she had shifted from her former place, leaving behind a trail of about 5 yards in length in which there were two evacuations of faeces. The skin felt somewhat cold, the hair was raised, and the flanks were hollow. After she had been placed in sterno-costal position she was able to maintain it. She did not rise when forced to do so. When lifted she stood a while but could not walk and went down again. She was then carried into the stable.

23.3.19: The cow was seen in sterno-costal position in the morning and looked very thin; her coat was staring. Her faeces were black and somewhat dry. She was noticed to pass urine normally whilst down. At 11 a.m. the cow was found lying on her side fully stretched out and quiet. She was put into sterno-costal position but could not maintain it. She refused to drink or eat.

24.3.19: This morning the cow was again found on her right side stretched out flat and quiet; no struggling of the legs had taken place. When put into sterno-costal position she had great difficulty in carrying the head. It swayed and finally doubled back on to the left shoulder. She maintained this position all day long. The coat was still staring and loss of condition had become very marked.

25.3.19: The cow was found dead this morning.

Temperature Record: The temperature was recorded as soon as the cow was noted ill; it was normal and subnormal during the few days of observation.

Post-mortem Report: Rigor mortis was present and complete. The condition was below fair. The integument was intact. No abnormalities were noted in the natural openings and their mucous membranes. The abdomen was slightly distended. The flesh in parts had a somewhat dry and opaque appearance. Fat was scarce in the subcutaneous deposits; on the right side the subcutaneous tissue showed a watery infiltration. No abnormality was noted in the superficial lymph nodes. No foreign contents were present in the peritoneal cavity. The serosa was smooth and glistening. The omentum was connected by fibrous strands to the peritoneum of the arcus costarum; the gall-bladder was also attached to it, but could easily be detached with the fingers. The pleural cavities were devoid of foreign contents; the costal pleura

was smooth and glistening. The mediastinal lymph nodes showed no changes. The subparotid and retropharyngeal glands were reddish and moist; the mandibulars showed no changes. In the salivary glands no abnormalities were noted. The tongue, pharynx, and oesophagus showed no alterations. In the larynx and the trachea some froth and ingesta were present; the mucosa showed no changes. The bronchi also contained froth, which was reddish stained. The thyroidea showed no change. The lungs were somewhat inflated. The visceral pleura of the right side was bluish discoloured and the underlying parenchyma was rich in blood. On pressure the lung tissue was elastic throughout, and on section it appeared moist and froth escaped from the cut surface. The pericardium contained 75 c.c. reddish stained clear liquid. The parietal serosa was also slightly reddish. The right ventricle and atrium were fully distended with a well-coagulated blood-clot; the left atrium contained a small clot and the left ventricle was almost empty. The endocardium of the right ventricle appeared somewhat reddened; that of the left as well as the intima of the vasa cordis showed no changes. The myocardium was somewhat opaque; epicardium was stained wine-red. The periportal lymph nodes appeared somewhat moist. The liver showed no change in size or shape. The capsule of the right lobe contained some white opaque patches, otherwise it was smooth and glistening. The parenchyma was opaque, friable, and gas bubbles escaped from the cut surface. The gall-bladder was distended with green liquid bile; the ductus choledochus was open. The spleen (42 by 12) showed a smooth capsule; the parenchyma was red brown and somewhat dry; the trabeculae were not distinct and the follicles not visible. The adipose capsule of the kidney was somewhat poor in fat, the fibrosa stripped off easily. The parenchyma of both organs was deep red brown and moist. The rumen was filled with moist ingesta; in the reticulum the ingesta were soft. Eleven pieces of bone, some pieces of china, and a piece of wire were present. The omasum contained fairly dry food. The ingesta in the abomasum were soft. The mucous membrane was slate-coloured and red in some parts; very small superficial ulcers were seen on the ridges of the folds. The contents of the pyloric portion were slightly more dry than those of the fundus. The small intestines were partly distended with gas and some portions were reddish and bluish discoloured. The mucosa of the jejunum was reddened and injected in a considerable portion of its length. The mucosa of the caecum was partly reddish and partly slate grey, likewise that of the colon and the rectum. The mesentery contained but little fat. The lymph nodes did not show any alterations. The superficial lymph nodes appeared markedly pigmented in the cortex. The urinary bladder contained some clear urine, the mucosa showed no changes. The sexual organs showed no abnormalities. The internal lymph nodes (iliacs and inguinals) showed no changes.

Pathological Anatomical Diagnosis: Atrophy of the adipose tissue. Foreign bodies in reticulum. Peritonitis adhaesiva of omentum majus. Vesicae felleae and of the liver. Hypostasis of the right lung. Oedema pulmonum. Atrophy of the spleen. Enteritis catarrhalis.

Diagnosis of Disease: Lamsiekte.

Epicrisis: The cow was noted to pick and chew rotten bones on eleven different days. She developed a disease, that began with salivation and developed into a paresis and subsequent paralysis of the locomotor system. The cow was finally unable to rise. She lived for five days. A conspicuous observation was the presence of a number of bones in the reticulum. The lesions of an intestinal catarrh were present, but by no means strongly pronounced. The case corresponds to subacute lamsiekte as encountered under natural conditions on the veld.

5. Red Cow 2181.—At Armoedsvlakte since 5.9.15. She was at one time in the soil infection experiments, soil being suspended in drinking-water. (*Vide* Fifth and Sixth Report, Director of Veterinary Research Experiment 19, page 285.) She calved on the 5.12.17. She was stabled in the shade by day since 25.1.18. She was tested and found to pick bleached bones on 5.3.19 and 6.3.19. She was then selected for the rotten bone-experiment, and observed to eat rotten bones on 17.3.19, 18.3.19, and 21.3.19.

22.3.19: This morning the cow returned with the herd, and was noted to go down immediately after arrival, contrary to her usual habit. She took up the sterno-costal position. When disturbed by other cattle or by the native she rose easily, but went down again almost immediately afterwards. Slight salivation was present. She was subsequently put in the hospital camp.

23.3.19: The cow was in sterno-costal position this morning, and when approached rose at once. After standing for a while she started grazing.

When brought back into the kraal she went down almost at once. She rose easily when forced to do so, standing with the front legs slightly apart. The walk was not yet markedly abnormal. Subsequently the cow went down again, and remained recumbent all morning. At times she was noted to double the head back. She was not seen to ruminate. She was down all afternoon. When approached in the evening she rose by herself, and then went to graze, but soon lay down again.

24.3.19: The cow was lying in sterno-costal position in the hospital camp. She was brought back to the kraal. She was unable to rise without assistance and on the short way back she lay down several times. On reaching the kraal she went down again immediately. Subsequently she was sent back to the camp. In the afternoon she was found lying behind a bush, but when approached she rose with some difficulty. She then went to pick some grass, but soon lay down again. The examination of a blood-smear gave negative results.

25.3.19: The cow was standing early in the morning, having probably been disturbed by roaming cattle. She grazed for a short while and then went down. Soon afterwards she was seen lying on her right side fully stretched out and struggling slightly with the legs. When put into sterno-costal position she was able to maintain it. In the afternoon she was singled out by a healthy heifer and poked severely. The cow made attempts to escape, but was unable to rise. In the evening she was brought to the stable. She walked to the entrance (a distance of about 250 yards), when she suddenly sagged in. She was unable to rise, and was then left alone.

26.3.19: In the morning the cow was in sterno-costal position, carrying the head well. When lifted she was unable to stand, and every time the support was withdrawn she sagged in. She was subsequently carried into the shade and propped up in sterno-costal position. Later she was found lying on her right side, and was put back into the sterno-costal position. She was subsequently able to maintain this position and rallied somewhat, carrying the head well and looking fairly bright. No faeces had been passed since the previous day.

27.3.19: The cow was in sterno-costal position this morning, and appeared to have improved in condition. She carried the head and neck well, pricked the ears, and had quite a bright look. She was noted to feed a little. Subsequently, when forced to rise, she was unable to do so. When lifted on to her feet she was unable to stand, but when recumbent she was able to maintain herself in sterno-costal position. She was seen to feed on fresh Kikuyu grass.

28.3.19: In the morning the cow was found in the same position as the previous evening. She looked fairly bright, and was feeding. During the day she appeared to become weak. Propped up in sterno-costal position, she was lying with the head stretched straight out; she was no longer able to carry the head. When it was raised the neck swayed and then doubled back on to the shoulder. She showed an increase of the respiration, which might, however, have been due to the great heat existing in the shed.

29.3.19: The cow was found stretched out this morning and showing dyspnoea. She was killed.

Temperature record: The temperature during the time it was recorded (26.3.19-28.3.19) was normal. The exacerbation on the evening preceding death reached 103° F.

Post-mortem of Cow 2181: The autopsy was made about three hours after death. Rigor mortis was not complete. The condition was fair. The integument was intact. The abdomen was not distended. The natural openings and the visible mucous membranes showed no changes. The blood was of normal colour. The subcutaneous tissue of the right side was somewhat moist; it appeared somewhat yellowish. The adipose tissue contained a fair amount of fat. The superficial lymph nodes (superficial cervical, subiliac, popliteal) showed no changes. The lymph nodes of the head (submandibular, sub-parotid, medial and lateral retropharyngeals) showed no abnormalities. The tongue, the pharynx, and oesophagus showed no changes; neither did the larynx and the mucosa of the cervical trachea. The internal lymph nodes (medial and lateral iliac), sublumbar, and hypogastric showed no abnormalities. The brain showed no changes.

The peritoneal cavity showed no foreign contents; the serosa was smooth and glistening. The reticulum was attached to the diaphragm and to the ventral border of the liver by fairly extensive fibrous tissue. The diaphragm convexity was forward. The pleural cavity was free of foreign contents. Both cardiac lobes were attached to the costal pleura by fibrous tissue which, however, could easily be broken down; also the basal lobes were partly attached to the diaphragm. In several places in the pleura costalis were fairly large patches

of thickenings. The visceral pleura was smooth, glistening, and transparent. The lungs were not completely retracted and fairly rich in blood; the consistence was soft and elastic throughout. On section blood and frothy liquid was noted to escape fairly freely from the lung parenchyma. The bronchial lymphnodes showed no abnormalities. The bronchi were filled with froth; the mucosa showed no changes; froth was also present in the thoracic trachea. The intima of the pulmonary vessels was smooth. The pericardium contained about 50 c.c. clear fluid. The parietal serosa was smooth and glistening. Under the pleura pericardialis a fair amount of fat was noted. The right ventricle and atrium of the heart were distended, and contained well coagulated blood; the left atrium contained a small quantity of blood, and the left ventricle was almost empty. In the left cranial musculus papillaris was a small hæmorrhage under the endocardium, otherwise the endocardium showed no changes; neither did the right endocardium. The epicardium along the left longitudinal groove showed some ecchymoses; there was a fair amount of fat present at the base of the heart. The myocardium was somewhat opaque. The intima of the vasa cordis showed no abnormalities. The periportal lymph nodes showed no abnormalities. The liver showed no changes in size or shape. The capsule of the left caudal and right cranial face showed white fibrous thickenings; otherwise it was smooth, glistening, and transparent. The parenchyma was red-brown, of firm consistence, and the section was smooth. The gall bladder was distended with green, turbid bile; the ductus choledochus was open. The pancreas was of usual appearance and consistence. The atrial lymph nodes showed no abnormalities. The spleen (42 by 13) showed no changes in form or shape. The capsule was slightly shrivelled; the pulpa was somewhat moist; the trabeculae were distinct, and the follicles were hardly visible. The suprarenal glands showed a markedly yellow cortex. The adipose capsule of the kidney showed a good amount of fat; it was easily stripped; the parenchyma was dark red-brown and of firm consistence. The rumen was distended with coarse ingesta. In the reticulum were a few pieces of bone and a piece of wire sticking in the wall, which was considerably thickened. No pus was found on sectioning the wall. The contents of the omasum were soft; those of the abomasum were liquid, and a number of small pieces of coal were also present. On the ridges of some of the folds ecchymoses and cicatrices were present. The mucosa of the duodenum showed no abnormalities; that of the jejunum was discoloured, and faint red cross stripes were seen for a distance of about two yards. Towards the ileum the mucosa was diffusely reddened. The ileum was slightly reddened. The mucosa of the caecum showed black pigmentation, likewise the commencing portion of the colon. The ampulla of the rectum contained soft faeces. A fair amount of fat was present in the mesentery; the lymph nodes showed no abnormalities. The urinary bladder was empty, and the mucosa showed no changes. The uterus contained a foetus.

Pathological Anatomical Diagnosis: Foreign bodies in reticulum. Peritonitis fibrosa. Pleuritis fibrosa. Oedema pulmonum. Hæmorrhage of left crania, musculus papillaris, and of epicardium. Gastro-enteritis catarrhalis.

Diagnosis of Disease: Lamsiekte.

Epicrisis: This cow had been selected for the experiment after having been noted to eat bleached bones. Subsequently she was seen to pick and eat rotten bones on three different occasions. She was ill for a period of six days, and during this time developed a disease that commenced as a paresis of the locomotor system and finished as a paralysis. Examination of blood-smears and the temperature records gave negative results. The case was one of typical lamsiekte. On post-mortem examination, bones could still be found in the reticulum. There were no other lesions present that would have been pathognomic for another disease.

6. RED HEIFER 3898.—Born at Armoedsvlakte 20.11.16. Since 25.1.18 stabled in the shade by day. The animal was seen chewing bones in the stable on 27.2.19. She was submitted to the bone-craving test, and found to pick and chew rotten bones on 4.3.19 and bleached bones in the tests of the 5.3.19 and 6.3.19. She was then selected for the rotten-bone experiment, and noted to pick and chew bones on the following dates: 8.3.19, 10.3.19, 11.3.19, 12.3.19, 13.3.19, 14.3.19, 17.3.19, 18.3.19, 21.3.19, and 22.3.19.

On 16.3.19 the heifer did not pick bones, but only sniffed at them, and then lay down. The subsequent days she returned to the bones and ate as usual.

23.3.19: With the exception of one day, this heifer had been a very lively animal all the time she was under observation. This morning, however, she was noted to lie down soon after she had returned from the veld. When forced to rise she responded without any difficulty, but soon went down again, and did so

every time she was disturbed. She was not seen to care for bones to-day. Only once she was noted to rise and to go to the trough and pick a bone, which, however, she soon dropped. She lay down again, and was seen to ruminate. The heifer was sent out with the cattle, and when examined in the veld during the afternoon was grazing and feeding well. Towards the evening she went down.

24.3.19: The heifer did not return with the herd this morning. She was found in sterno-costal position. She was able to walk back, but her gait was noted not to be that of a normal animal. When an attempt was made to catch her, she escaped and jumped the gate. She was noted to salivate slightly. Most of the time during the morning she was found lying on the ground. She rose occasionally and went to pick bones, and between 11 and 12 a.m. was actually seen chewing one. The temperature was 101.6° F and the microscopic examination of the blood-smears gave negative results. The heifer was not sent to the veld to-day, but turned into the hospital camp. In the afternoon she was found in recumbent position in the shade of a bush, and when approached rose immediately.

Diagnosis: Lamsiekte.

25.3.19: The heifer was found standing this morning and in company of a bull. When driven to the kraal, an abnormal, somewhat clumsy walk, was markedly noticeable. After arrival in the kraal she went down, and was in sterno-costal position practically all the morning. She was turned out into the hospital camp for the afternoon, and was seen rising at intervals, every time with a certain amount of ease.

26.3.19: The heifer was found standing and grazing in the morning, but she went to lie after a while alongside of Yellow Cow 2790 (suffering from lamsiekte, *vide supra*), which was also in the hospital camp. When approached, she rose at once and took a somewhat aggressive attitude, her look being distinctly wild. The walk was impaired but not clumsy. When visited in the afternoon she again was found in recumbent position, and rose at once, showing wild and staring eyes.

27.3.19: In the morning the heifer was found grazing. Her walk was somewhat clumsy and that of a lamsiekte animal; the legs in moving were slightly spread, and head and neck were carried low. She was driven into the stable.

28.3.19: The heifer, which was lying down, rose without difficulty when approached, but lay down again almost immediately. She carried the head well, and was feeding normally.

29.3.19: The heifer was found in sterno-costal position and rose at once when approached.

30.3.19: The heifer was standing in the morning, but went down subsequently. She carried head and neck well and still had a somewhat wild look. The droppings were dry and spiral-shaped.

31.3.19: The heifer rose when approached and walked to the water-trough to drink water. When standing the front legs were slightly spread, and head and neck were carried somewhat low. She soon lay down again.

1.4.19: The heifer was lying down almost all the day, but when approached she rose easily and ruminated normally.

2.4.19: The heifer was in sterno-costal position, and behaved in all respects like a healthy animal.

3.4.19: The heifer was in recumbent position, but looked normal in all other respects.

4.4.19: The same observations were made to-day as on the last two days.

5.4.19: The heifer was walking about and feeding freely; the walk was still slightly stiff. The droppings were dry, and formed in small balls like those of a horse.

6.4.19: The heifer to-day had the appearance of an animal in normal health.

7.4.19: There was no change in the appearance of the animal.

9.4.19: The heifer was in sterno-costal position, and when approached did not rise. She was ruminating, and carried her head and neck well, and had quite a bright look. In the afternoon she was turned out and moved about very freely and showed very little stiffness in the gait. On 10.4.19 and 11.4.19 the heifer behaved in all respect as a healthy animal.

12.4.19: The heifer was now turned out into the hospital camp.

Temperature: During the period the heifer was under observation the temperature curve was normal. Subsequently the heifer was again noted to chew and pick rotten and sterilized bones on the following days, viz.: 2.5.19, 3.5.19, 5.5.19, 6.5.19, 8.5.19, 12.5.19, 15.5.19, and 18.5.19.

On 20.5.19 she was transferred as a craver into an experiment to study effects of extra foodstuffs on craving.

Epicrisis: The heifer was picked out as a craver for rotten bones, and on eleven different days was noted to be eating rotten bones. She developed a slight disease during which the locomotor apparatus was involved, but never leading to paralysis. The disease was diagnosed as lamsiekte, and must be considered to be a typical mild case. It is of interest to note that the heifer never lost the craving entirely, and even during the disease could not resist sniffing at bones at times, and she recommenced eating of bones as soon as she had recovered and the opportunity was given to her. Recovery from lamsiekte does not mean therefore that the animal will lose the abnormal craving.

7. RED AND WHITE Cow 3000.—At Armoedsvlakte since 22.10.16. She was in the alternate feeding and grazing experiment from 22.10.16 until 14.8.17. Stabled since 25.1.18 in the shade by day. She calved on 21.12.18. On the 6.3.19 and 17.3.19 she had been noted to pick bleached bones when put in the craving test. She was then selected as a bone-eater for the second lot of cattle to be placed into the rotten-bone experiment.

On 16.3.19 the cow coming in from the veld carried the rotten foot of a calf in the mouth. She chewed this very eagerly. On the foot were still present ligaments and claws; the former were much masticated. Since no calf had died since 23.2.19, the foot must have originated from one that had died before this time. It must have been taken out of the carcass paddock, and was probably carried from there into the veld by dogs.

23.3.19: The cow was noted to eat rotten bones from the troughs.

26.3.19: The cow was noticed to be the first animal to lie down after arrival. She rose easily, but subsequently went down again; her demeanour in all other respects was that of a normal animal. She accepted the calf willingly.

27.3.19: The cow went down immediately after she had arrived in the kraal; when disturbed she rose fairly easily, but soon resumed the recumbent position. She allowed the calf to suck, and she was milked subsequently. The native stated that the yield of milk was less than a few days previously. After milking, the cow lay down again, and did not allow the calf to approach the udder. The coat of the cow was somewhat staring. The native herdsman reported that on the previous day this cow had been noticed to be lying down rather frequently in the veld. The cow was not sent out into the veld with the herd, but was turned into the hospital camp.

28.3.19: The cow was found in sterno-costal position in the camp. She rose easily and was brought to the kraal, where after arrival she immediately went down. She was returned to the hospital camp after return of the herd to the veld. In the afternoon she was noticed to be grazing.

29.3.19: In the morning the cow was standing and grazing. She was brought to the kraal, where she lay down after arrival.

30.3.19: The cow was walking slowly and clumsily into the kraal this morning, and soon lay down. In the afternoon she was seen standing in the camp and chewing a bone most eagerly.

31.3.19: The cow walked into the kraal and went down immediately. Subsequently she was seen standing.

1.4.19: Immediately after arrival in the kraal the cow went down. She carried head and neck well, and was seen ruminating normally. Loss of condition had become noticeable during the last few days.

2.4.19: After returning into the kraal, the cow lay down; otherwise she behaved as a normal animal.

3.4.19: The cow walked into the kraal and was subsequently noticed to be down frequently. She was ruminating normally. She was observed to go to the trough and to pick a bone and to chew it.

4.4.19: After arrival in the kraal the cow lay down, and was in sterno-costal position for the greater portion of the morning. She was ruminating, and otherwise behaved like a normal animal.

5.4.19: The cow returned to the kraal and lay down. The loss of condition was markedly increased.

6.4.19: Soon after arrival the cow lay down. She was noted to rise, go to the trough, pick putrid bones, and chew them.

7.4.19: Soon after arrival the cow lay down, but otherwise, from her behaviour, she did not appear to be ill. She was noted to pick and chew bones from the trough.

8.4.19: The cow lay down soon after returning to the kraal. The coat was staring this morning and had a very rough appearance. She had been noted to chew a bone in the veld, and she picked and chewed one from the trough in the kraal.

9.4.19: The cow walked into the kraal and then lay down. From to-day she turned out again with the herd into the veld.

10.4.19: The cow returned with the herd, and was noted to pick and chew bones from the trough.

11.4.19: After arrival the cow picked and chewed bones from the trough.

12.4.19: The cow did not return with the herd this morning. She was subsequently brought into the kraal, where she was observed to pick bones from the trough and to chew them. She was again detained in the hospital camp.

13.4.19: The cow after arrival in the kraal was noticed to pick and chew a bone. She was still chewing it after being turned out into the hospital camp.

14.4.19: The cow was seen to pick a bone from the trough and to chew it.

15.4.19: She was noted to pick bones from the trough and to chew them; also on the 16.4.19. From to-day the cow was again turned out into the veld with the herd.

17.4.19: This morning the native herdsman reported that yesterday the cow accompanied the herd into the veld, but lay down. When the boy returned in the evening she was unable to rise. The cow did not return this morning, but was brought in by wagon and placed in the stable. At 1 p.m. the cow tried to rise when disturbed, and made several futile attempts. She was able to place the forelegs in position, but could not lift the hindquarters. At 4 p.m. the temperature was 100.8° F. A solution of 2 grammes camphora in 500 c.c. 25 per cent. alcohol was injected intrajugularly. At 6 p.m. the cow was feeding. The examination of a blood-smear gave negative results.

18.4.19: The cow was in sterno-costal position. She was ruminating and subsequently also feeding. She again made some attempts to rise, but did not succeed. At 11 a.m. she received an intrajugular injection of 2 grammes camphor dissolved in 500 c.c. 25 per cent alcohol.

19.4.19: The cow was in sterno-costal position and ruminating. The loss of condition had become very marked, the coat was staring. She nevertheless looked fairly bright. In the afternoon the coat had a smooth appearance. At 4 p.m. she received an intrajugular injection of 2 grammes camphor as above.

20.4.19: The cow was down all day. She was seen feeding and ruminating. At 10 a.m. she received an interjugular injection of 2 grammes camphor in 500 c.c. 25 per cent. alcohol. In the afternoon the cow was noted to feed greedily on fresh food.

21.4.19: During the night the cow had shifted from one place to another. Immediately below the tail, at a little distance behind the cow, a fairly large quantity of somewhat dry faeces was noticed. The cow looked somewhat sleepy, and at times doubled the head back. The coat was staring. Subsequently she was noticed to feed.

22.4.19: Similar observations were made as yesterday.

23.4.19: The cow was in the same position and in the same place as yesterday. The coat was staring. The faeces were black and somewhat dry. She was feeding, but the prehension and mastication of food was very slow.

24.4.19: The cow was down and feeding fairly well.

25.4.19: The cow was found in the same position as yesterday and was ruminating.

26.4.19: Similar observations were made as yesterday. The cow was ruminating slowly.

27.3.19: No change was noted to-day.

28.4.19: The cow fed fairly greedily on Kikuyu grass supplied to-day.

29.4.19: No change was noted in the morning. In the afternoon the cow was seen with head doubled back on the left shoulder. Previously she had been feeding and drinking.

30.4.19: The cow was still in sterno-costal position. She had been feeding to-day.

1.5.19: The cow was found on one side, she was quiet, and no marks of struggling were noted in the bedding. After being placed into sterno-costal position, she was able to maintain it. She was noted to feed and drink normally.

2.5.19: The cow was found stretched out on the side with the head doubled back on her shoulder. When put back into sterno-costal position she maintained it.

3.5.19: Similar conditions to yesterday's were noted to-day.

4.5.19: The cow was found stretched out, and remained so all day long, being unable to maintain the sterno-costal position when placed into it.

5.5.19: No change was noted this morning. The cow died in the afternoon.

Temperature Record: The temperature was registered daily from the 17.4.19 to 5.5.19. The evening records never passed 102° F; in the morning they frequently reached 99° F, and even dropped below this. During the last week of illness the curve showed irregular morning and evening exacerbations.

Post-mortem Report of Cow 3000: The autopsy was made three hours after death. Rigor mortis was not complete. The condition was poor. The integument showed decubitus in several places, particularly on the legs. The abdomen was relaxed. The blood was partly coagulated. The subcutaneous tissue in several places showed jelly-like infiltrations and had an ochre-yellow tinge. The superficial lymph nodes appeared to be unusually small, and were embedded in a watery jelly-like tissue. The oral cavity, the pharynx, and the oesophagus showed no abnormalities. The peritoneal cavity contained a small quantity of clear liquid. The reticulum was attached to the diaphragm by fibrous adhesions. The convexity of the diaphragm was forward. The right lung was attached to the pleura by fibrous bands, but could easily be detached; otherwise the pleura was smooth and glistening. The larynx and trachea showed no abnormalities. Some bronchi contained ingesta, and the mucous membranes were reddened. The right apical lobe was partly collapsed. The parenchyma of the lungs was elastic, fairly rich in blood, and moist; some froth escaped on section; it was also present in the bronchi. The pericardium contained 40 c.c. clear liquid. The parietal serosa was smooth and glistening. In the pericardiac pleura near the base some ecchymoses were present.

The right ventricle and atrium were greatly distended, and contained well coagulated blood; left ventricle and atrium were less distended. Extensive ecchymoses were present in the epicardium of the left ventricle; a few were present on the right ventricle. The fat at the base of the heart was replaced by a jelly-like substance. The aorta abdominalis showed to a great extent a grooved and pitted appearance, the wall was thin and paper-like on palpation. The periportal lymph nodes were of usual size and consistence. The capsule of the parietal face of the liver showed a white patch. The colour of the liver parenchyma was red-brown with a somewhat greenish hue. The consistence was fairly firm. The gall-bladder was half filled with yellow bile. The ductus choledochus was open. The pancreas was soft and watery. The atrial lymph nodes appeared to be of usual size and consistence. The spleen measured 50 by 15 cm. The pulpa was slightly softened. The trabeculae were distinct. The suprarenal glands were dark-brown with a distinctly yellow cortex. The adipose capsule of the kidney was poor in fat and gelatinous. The fibrosa stripped easily. The kidney was dark red-brown; the intermediary zone was almost black. The consistence was somewhat firm. The rumen was filled with coarse ingesta; in the reticulum they were liquid. There was one piece of bone present. The omasum was almost empty, and the ingesta present were soft; those of the abomasum were liquid. The mucous membranes showed no changes. The jejunum showed in some parts a black discoloration and in other parts zebra markings; there were also red patches present. The mucosa of the caecum was pinkish, and that of the colon streaky black in some parts. The mesentery was devoid of fat, the lymph nodes appeared rather small. The urinary bladder was full of urine. The mucosa showed no changes. The brain showed no abnormalities. No alterations was noted in the sexual organs.

Pathological Anatomical Diagnosis: Anaemia and hydraemia. Peritonitis and pleuritis fibrosa. Ecchymoses in pericardium and endocardium. Atelectasis of right apex pulmonis. Oedema pulmonum. Foreign bodies in reticulum. Necrosis and calcification of the media aortae abdominalis. Slight enteritis catarrhalis.

Diagnosis of Disease: Lamsiekte and cachexia.

Epicrisis: This case is somewhat peculiar in as much as there are only two records of rotten-bone eating previous to the appearance of symptoms. The primary illness was only a light one and did not prevent the cow from eating rotten bones. Subsequently the disease increased in severity and developed into a paresis and paralysis of the locomotor system and finally the cow died. The diagnosis lamsiekte was made. The case was originally a light one but developed into a fatal one, probably caused by the subsequent continuous intake of toxic material. The autopsy showed the presence of one bone in the reticulum. The last time the cow was noticed to chew bones was nineteen days previous to death.

8. BLACK AND WHITE TOLLIE 3826.—At Armoedsvlakte since 6.12.17. It was castrated on the 11.1.18. It was placed in the loogas and rooibrak experiment on 24.4.18. When submitted to a craving test with bones on 5.3.19 it was noted

to pick and chew bleached bones. On 8.3.19 it was transferred to rotten-bone experiment. The tollie was noted to eat rotten bones on 8.3.19 and subsequent days until 22.3.19, and again from the 24.3.19 to the 30.3.19.

28.3.19: This morning the tollie was noted to lie down as soon as it had entered the kraal. Subsequently when disturbed it rose at once, but lay down again immediately afterwards. The coat over the back and on the throat was staring; the animal had completely changed its behaviour and was quiet. Later in the morning it was noticed to pick and chew a bone. It was not sent out into the veld, but turned into the hospital camp. The diagnosis lamsiekte was made.

29.3.19: This morning the tollie was grazing in the camp. When returned to the kraal it soon lay down. It looked very much distressed. The temperature was 101.2° F.

30.3.19: The tollie walked into the kraal and lay down; it carried the head and neck fairly low. It was subsequently noted to pick bones from the trough and to chew them.

31.3.19: When walking into the kraal this morning the tollie had a distinctly clumsy gait. It soon lay down. Subsequently it was noted to rise and lie down at intervals. When standing quietly it kept the front legs fairly wide apart and carried the head and neck low. It was listless and very quiet.

1.4.19: The tollie walked into the kraal with a clumsy gait and lay down. It rose occasionally but soon returned to the recumbent position. The coat was staring. The tollie showed much malaise and kept away from the other animals.

2.4.19: After arrival in the kraal the tollie lay down. It rose occasionally and was seen at one time to jump over the trough. It looked somewhat better than on the previous day, but was still much dejected. It picked and chewed bones.

3.4.19: After return to the kraal the tollie lay down. Subsequently it was noted to pick and chew bones at the trough. Generally it looked brighter during the last few days.

4.4.19: After arrival in the kraal the tollie lay down and was practically down all morning. It was noted to ruminate normally and had a bright appearance.

5.4.19: The tollie walked into the kraal and soon lay down and was in sterno-costal position most of the time. It was noted to pick and chew bones.

6.4.19: The tollie lay down soon after arrival.

7.4.19: The animal was lying down most of the time, but from its behaviour observed when in sterno-costal position it did not appear to be ill.

8.4.19: From this date the tollie was considered to have recovered. It was transferred to a bone-meal feeding experiment.

11.4.19: It was tested with bleached and sterilized rotten bones and was noted to pick bones. Subsequently the tollie was again noted to pick and eat rotten bones on 26.4.19 and sterilized rotten bones on 5.5.19.

Epicrisis: The tollie was noted to eat rotten bones on twenty different occasions before it fell ill. The illness was diagnosed as lamsiekte and represented a mild case appearing as a paresis of the locomotor system. It is interesting to note that during the illness the animal continued to pick and chew rotten bones and notwithstanding this made a complete recovery. It would thus appear that some animals acquire at least a partial immunity against or tolerance for the toxin that produces lamsiekte.

9. BLACK Cow 3004.—Received from Bestersput. She was in an alternate feeding and grazing experiment from the 1.3.17 till the 14.8.17. She was then put into a second alternate feeding experiment from the 24.10.17 till the 15.11.17. Since the 25.1.18 she was kraaled in the sun by day. She calved on the 24.9.18. In the bone test on 4.3.19 and in the bleached bone tests on 5.3.19 and 6.3.19 she proved to be a bone-eater and was selected for the rotten-bone experiment. She was noted to pick and chew rotten bones on 7.3.19 and 8.3.19. From 11.3.19 to 30.3.19 she was daily seen to pick and eat bones.

On the 28.3.19 contrary to her habit the cow lay down soon after arrival; she was subsequently noted to pick and chew bones eagerly.

29.3.19: She was again noted to pick and chew bones; she went to the veld with the herd.

30.3.19: The cow returned with the herd and was noted to be the first animal to lie down. She ruminated normally. When disturbed she rose easily, but soon went down again. She was noted to pick and chew bones.

31.3.19: To-day nothing abnormal was noted with this animal; she did not lie down. She was not noted to pick or chew bones on 1.4.19, 2.4.19, and 3.4.19.

4.4.19: This morning the cow was lying near the camp gate. The native herdsman reported that she had been down practically all the previous afternoon. As soon as the gate was opened she rose and walked to the kraals with the herd. Her gait was changed, the front legs were carried somewhat in abduction. Every time a leg was moved a distinct nodding motion of head and neck was noticed and consequently the gait appeared heavy and clumsy. After arrival in the kraal she lay down; when disturbed she rose reluctantly and soon lay down again. She was noted to ruminate. The temperature was 101° F. The respiration was normal. The coat was somewhat staring, particularly in the region of the shoulder and the thorax. She did not pick any bones to-day. The cow was not returned to the veld but was placed in the hospital camp. At 5 p.m. she was unable to rise. She made an attempt to do so, but was unable to lift the hindquarters. To judge from the disturbances in the ground she had already previously made some attempts to rise. The coat was still somewhat staring; the flanks were empty. The cow still appeared bright and carried head and neck well. She resented the presence of men, shaking the head when approached. The cow was carted into the stable before dark.

5.4.19: The cow was found dead this morning and was already rigid; she had apparently died early the previous night.

Examination of a blood-smear gave negative results.

Post-mortem Report of Cow 3004: Rigor mortis was present and complete. The condition was very good. The abdomen was distended; the integument was intact; liquid ingesta were running from the nostrils; the visible mucous membranes showed no abnormalities; the flesh was of normal appearance; fat was present in the adipose deposits of the subcutaneous tissue and was of natural colour. The superficial cervical lymph glands were enlarged and moist. No foreign contents were noted in the abdominal cavity. The peritoneum was smooth and glistening. The abdominal lymph nodes showed no abnormalities. The mucosa of the larynx and trachea was bluish discoloured. The submandibular lymph nodes showed no abnormalities, the retropharyngeals were somewhat enlarged and moist and of red colour. The oral cavity, the tongue and the oesophagus showed no abnormalities. The oesophagus contained some ingesta. A little red-stained liquid was present in pleural cavities. The intercostal spaces showed streaks of a tufted fibrous tissue (granulation tissue). The lungs were partly in the inspiratory stage; the parenchyma was elastic, moist, and fairly rich in blood. The pulmonary artery contained a clot of blood. The intima of the pulmonary artery was red stained, likewise that of the pulmonary vein. The mucosa of the bronchi showed echymoses in patches and in streaks. Froth was present in the lumen. The pericardium contained 150 c.c. of red-stained liquid. The epicardium was diffusely reddened. The right ventricle and atrium were filled with well-coagulated blood. The left ventricle and atrium were almost empty. The right endocardium was diffusely wine red stained; the left one was not discoloured. The myocardium was opaque and somewhat dry. The liver showed no change in size or shape, and the capsule was smooth and glistening. The periportal lymph nodes showed no changes. The colour of the liver parenchyma was yellow, the consistence was soft. P.M. changes were evident. The gall-bladder was filled with a greenish yellow bile. The ductus choledochus was open. Spleen 50 by 12 cm. The pulpa was soft, almost liquid; trabeculae and follicles were not visible. The rumen contained coarse ingesta; the mucous membranes peeled off and the submucosa was diffusely reddened, patchy and streaky, particularly in the rumeno-reticular fold and adjacent regions. Some bones were present; the reticulum also contained some bones. The omasum contents were moist. In the abomasum the contents were liquid; in the fundus the blood-vessels were injected. The small intestines contained gas and liquid; the serosa in parts had a reddish-blue appearance. The mucosa of the duodenum appeared slightly swollen and reddened; likewise that of the jejunum. That of the ileum was injected and diffusely reddened and in parts blackish discoloured. The mucosa of the caecum was reddened, also that of the first portion of the colon; the rectum showed no changes. The mesentery was rich in fat; the lymph nodes were of normal size, but somewhat moist. The suprarenal glands appeared yellow in the cortex. The adipose capsule of the kidney was rich in fat, the fibrosa stripped off easily. The parenchyma of the kidney was somewhat pale, moist, and friable. The urinary bladder was empty. The uterus was pregnant, containing a small foetus. The brain showed no abnormalities.

Pathological Anatomical Diagnosis: Pleuritis fibrosa. Ecchymoses in mucosa of bronchi. Oedema pulmonum. Ecchymoses of epicardium. Rumenitis haemorrhagica. Foreign bodies (bones) in reticulum. Gastritis and enteritis catarrhalis.

Diagnosis of Disease: Lamsiekte.

Epicrisis: Cow 3004 was noted to pick and eat rotten bones twenty-one days before she took ill. The disease appeared gradually and developed into a complete paralysis of the locomotor system. After the appearance of the first symptoms the cow continued to eat bones. The typical onset of the symptoms affecting the muscular system, the absence of fever, and the negative results of the blood examination allowed the diagnosis lamsiekte, which once it had declared itself, was of a subacute course. It is of interest to note that in the rumen extensive lesions of the submucosa in form of an inflammatory process were present. Thus it would appear that rotten bones besides the toxic effect on the motor system may also produce local lesions in the rumen.

10. **BLACK HEIFER 4005.**—Born at Armoedsvlakte on 8.7.17. On 15.4.18 she was placed amongst the controls.

On 9.3.19 and 13.3.19 she was observed to chew bones in the veld.

On 17.3.19 she was tested for craving with bleached bones, and selected for the rotten-bone experiments as a bone-eater.

On 18.3.19 and on the following dates, 21, 22, 23, 25, 26, 27, 28, 29.3.19, she was noted to pick and chew rotten bones.

31.3.19: The heifer did not return with the herd this morning. The herdboys reported her to be lying down stretched out on one side. When the wagon arrived to take her in she was found dead. The examination of blood-smears gave negative results.

Post-mortem Report: The autopsy was made soon after death. Rigor mortis was not present. The condition was good. The integument was intact; the abdomen was slightly distended. The natural openings and the visible mucous membranes showed no abnormalities. The blood stained well. A fair amount of fat of usual colour was present in the subcutaneous adipose tissue. The superficial lymph nodes appeared of usual size and consistence. The abdominal cavity showed no foreign contents. The peritoneum was smooth and glistening. The convexity of the diaphragm was forwards. The left pleural cavity contained a small quantity of straw-coloured fluid in which some fibrin coagula were floating. The left lung was attached by fibrous tissue to the costal pleura, but could easily be detached. Ecchymoses were present in the pleura of the dorsum thoracis and of the mediastinum. The pericardium contained 500 c.c. of straw-coloured fluid; the parietal serosa was smooth and glistening. The mandibular and retropharyngeal lymph nodes were somewhat congested. The mucosa of the larynx and of the trachea appeared normal; the lumen of the trachea contained froth, which was also found in the bronchi, the mucosa of which showed no changes. The lungs were partly in the inspiratory stage; the pleura in parts was bluish discoloured. The parenchyma of the lungs was elastic, it was fairly rich in blood, and on section appeared moist. The intima of the pulmonary arteries and veins showed no changes. The bronchial lymph nodes were slightly swollen and moist. The right atrium and ventricle contained a fair amount of blood; the left were almost empty. Both endocardia, as well as the atrio-ventricular and semi-lunar valvae, showed no abnormalities. In the epicardium a number of ecchymoses was present. The myocardium showed the usual colour and transparency. The liver showed no change in size and shape. The capsule was smooth and glistening. The colour of the parenchyma was red-brown, the consistency firm. The gall-bladder was fairly distended with green bile, the ductus choledochus was open. The periportal lymph nodes were of usual size and appearance. Spleen, 34 by 12 cm. The pulpa was somewhat softened. The trabeculae were fairly distinct, also the follicles. The oral cavities showed no changes, likewise the pharynx; the oesophagus contained some froth and a piece of bone. The rumen contained coarse ingesta. The reticulum contained a number of bones. The contents of the omasum were fairly dry, those of the abomasum were liquid. The mucous membranes showed no changes. The mucosa of the duodenum was reddened and a mucous deposit was adherent to it; the jejunum and the ileum in their whole length were likewise reddened, and the mucosa slightly swollen. The mucosa of the caecum was also reddish, particularly pronounced in the apex. The colon showed no changes; the rectum contained soft faeces. The mesentery was rich in fat. The lymph nodes were of usual size and consistence. The suprarenal glands showed the cortex distinctly yellow. The adipose capsule of the kidney was rich in fat, the fibrosa stripped easily. The parenchyma was

red-brown and of firm consistence. There was a buttonlike protuberance on the surface and penetrating into the cortex. The urinary bladder was empty. The mucosa was normal. The sexual organs showed no changes, and none were observed in the brain. The microscopical examination of the blood gave negative results.

Pathological Anatomical Diagnosis: Bones in oesophagus and reticulum. Enteritis muco-catarrhalis. Hydropericardium. Ecchymoses in epicardium and in pleura. Pleuritis fibrosa. Organized infarct in the kidney.

Diagnosis of Disease: Lamsiekte.

Epicrisis: Heifer 4005 had been noted to be eating bones in the veld. She was selected as a bone-eater in a test with bleached bones, and placed in the bone-eating experiment. She was noted to pick and chew rotten bones on nine different occasions. She developed an acute disease, to which she succumbed. The disease was represented by a complete paralysis of the locomotor system. It was diagnosed as lamsiekte. In support of this diagnosis must be considered the negative results of the blood and the post-mortem examinations.

11. BLACK TOLLIE 3854.—At Armoedsvlakte since 6.12.17. It was placed in loogas and rooibrak experiment on 24.4.18. It was tested on 5.3.19 with bleached bones and found to be a bone-eater and selected for the rotten-bone experiment. It was seen to pick and chew rotten bones on 7.3.19, 8.3.19, and on the following dates, 10. 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, and 31.3.19.

1.4.19: This morning the tollie did not return to the kraal with the herd, it passed the camp gate but immediately lay down behind a bush. The native herdsman reported that it had been down frequently the previous afternoon and had not been feeding well. When approached the tollie made an attempt to rise, but it was unable to lift the body; its temperature registered 100.6° F. The examination of the blood gave negative results. Later the animal was carried into the stable. It remained in sterno-costal position and was noted to double the head back.

2.4.19: This morning the tollie was found stretched out on its right side. When placed in sterno-costal position it swayed the head, which doubled back on the shoulder. Subsequently it was again found stretched out on one side and it showed a slightly increased respiration. It died the same afternoon.

Post-mortem Report of Tollie 3854: The autopsy was made about two hours after death. Rigor mortis was not complete. The condition was good; the integument was intact; liquid ingesta were running from the nostrils; the visible mucous membranes showed no changes. The blood stained well. The subcutaneous tissue possessed fairly well-marked fat deposits. The flesh had a healthy appearance. The peritoneal cavity showed no foreign contents; the situs viscerum was normal; the peritoneum was smooth and glistening; the convexity of the diaphragm was forward. The pleural cavities showed no foreign contents; the costal pleura was smooth and glistening. The pericardium contained 10 c.c. clear yellow liquid; the parietal serosa was smooth and glistening. The retropharyngeal lymph nodes were somewhat enlarged and moist. The mucosa of the larynx and trachea showed no changes, some froth was present in the lumen. The lungs were partly in the inspiratory stage; they were elastic. The pleura appeared transparent. The bronchial lymph nodes were somewhat moist. The cut surface of the lungs appeared moist and froth was present in the bronchi. The pulmonary arteries and veins showed no abnormalities. The right ventricle and atrium were distended with a blood-clot; the left were almost contracted. The endocardium, atrio-ventricular and semi-lunar valves showed no changes. The epicardium of both ventricles showed a number of ecchymoses. The myocardium was of red-brown colour; it was transparent and firm. The liver showed no changes in size or shape; the capsule was smooth and glistening; the parenchyma was reddish brown. Numerous yellowish spots irregularly distributed were present; the consistence of the parenchyma was somewhat softened. The gall-bladder was filled with yellow bile, the ductus choledochus was open. The periportal lymph glands appeared somewhat moist. Spleen: 36 × 12 cm. The capsule of the caput was slightly shrivelled; the pulpa was somewhat soft, the trabeculae were not distinct, the follicles were distinctly enlarged. The rumen contained normal ingesta; the reticulum contained a number of small pieces of bone; the contents of the omasum were dry and small pieces of bone were present; the contents of the abomasum were liquid; the mucosa showed no changes. The mucosa of the duodenum was reddened and slightly swollen and mucus was adherent to it; the mucosa of the jejunum was also slightly swollen and yellowish discoloured; the ileum was hæmorrhagic in parts and large flakes

of mucus were present. The caecum was diffusely reddened and the blood-vessels were injected; the ansa proximalis of the colon was slightly reddened; the rectum contained dry faeces covered with mucus. The mesentery was fairly rich in fat, the lymph nodes appeared somewhat moist. The cortex of the suprarenal glands was distinctly yellow. The adipose capsule of the kidney was rich in fat and stripped easily. The kidneys were red brown in colour, rich in blood, and of firm consistence. The bladder was distended with clear urine, and the mucosa showed a number of ecchymoses. The sexual organs showed no abnormalities. The brain showed no changes. The examination of the blood gave negative results.

Pathological Anatomical Diagnosis: Bones in reticulum and omasum. Enteritis muco-catarhalis. Impaction of omasum. Ecchymoses in epicardium and in urinary bladder. Icterus of the liver.

Diagnosis of Disease: Lamsiekte.

Epicrisis: Tollie 3854 had been selected as a bone-eater in the test with bleached bones. It turned out to be a rotten-bone eater as well, as soon as it had access to such. It was noted to pick and chew bones on twenty-three different days. Only on three days it left the bones alone. The disease was first noted on the afternoon of the day it had been noted to pick bones for the last time. It developed a fairly acute disease, involving the locomotor system. Both the absence of fever and the negative result of blood examination and the subsequent findings on post-mortem allowed a definite diagnosis of lamsiekte.

12. DUN TOLLIE 3821.—At Armoedsvlakte since 25.1.17. It was placed in the alternate feeding experiment on 24.10.17 until 15.11.17. Since 25.1.18 it was stabled in the shade by day.

On 12.3.19 it was noted to chew a bone in the veld.

On 17.3.19 it was submitted to the craving test with bleached bones and subsequently selected for the rotten-bone feeding experiment.

On 28.3.19 it was observed to pick and chew rotten bones and again on 29.3.19, 31.3.19, and 3.4.19.

4.4.19: The native herdsman reported that this animal was standing practically all the previous afternoon and not eating. This morning it returned with the herd, but soon separated itself from the other cattle. It was noted to be frothing at the mouth. Subsequently it was found in sterno-costal position with hind legs stretched backwards and neck and head in normal position. The left flank appeared slightly blown. The respiration was somewhat accelerated. The examination of the mouth showed no abnormalities. The animal was dosed with one pound of glauber salt. Great care had been taken but notwithstanding this some liquid entered the larynx and provoked coughing. After release, some liquid escaped through the nose and mouth. The animal showed great distress and increased respiration. After being placed in the stable the tollie maintained the standing position for some time. Subsequently it lay down. In the afternoon it was again found on its feet; the respiration was still increased, the flanks were sunken.

5.4.19: The tollie was found in sterno-costal position this morning and grunting slightly with every respiration; the flanks were hollow. It rose subsequently and picked and chewed some food; it foamed at the mouth and champing of the teeth was noted. It refused to drink water out of the bucket; when brought to the trough it smelt at the water and withdrew. In the afternoon the tollie was standing in a corner of the stable, it was salivating; foamy saliva was hanging about the mouth. It was then brought to the water-trough. After some hesitation it dipped its mouth into the water and made an attempt to swallow, but no movements of the oesophagus were observed and the water mixed with the saliva and ingesta returned through the mouth. It was finally ejected with some force. A second attempt was made; again the water returned through the mouth. The animal had a wild look, most of the time it was standing and staring, the eyes appeared slightly sunken; the ears were drooping. On the floor of the stable masticated food was found lying about.

6.4.19: The animal was found standing this morning and frothing at the mouth. It appeared to be better than on the previous day. In the afternoon it was lying down and slightly grunting. The lateral wing of the nostrils was moved with every respiration. It was still frothing at the mouth and had not been observed to eat.

7.4.19: The tollie was found lying in the morning and it rose after some reluctance and then moved about quite lively; it was still frothing at the