

Pathological Anatomical Diagnosis: Enteritis catarrhalis et hæmorrhagica. Ecchymoses in epicardium. Foreign bodies in reticulum. Subcutaneous granulation tissue in neck.

Etiological Diagnosis: Lamsiekte.

2. HEIFER 149.—A one-year-old red heifer in rather poor condition. Rigor mortis was present. The autopsy was made soon after death. The abdomen was relaxed. The integument was intact. The mouth and anus were closed. The visible mucous membranes showed no change. In the mouth cavity a bolus of chewed grass was present. The blood stained fairly well, and was not completely coagulated. The flesh was somewhat pale. The subcutaneous tissue was devoid of fat, and had a somewhat moist appearance. At the seat of injection a necrotic focus, about the size of a hand, was present, and the surrounding tissue was diffusely injected. The parotid and submaxillary glands were of normal consistence. The lymphatic glands of head and shoulder appeared swollen. The tongue, oesophagus, and pharynx showed no change. The peritoneum was smooth and glistening. The diaphragm was convex forward. The situs viscerum was normal. The pleural cavities contained a little clear fluid. The costal pleura was smooth and glistening. The larynx and cervical trachea showed no change. The thoracic trachea contained some froth. The bronchi were filled with froth. Their mucosa showed no change. The lungs were partly in inspirium and fairly rich in blood, moist on section. The visceral pleura was smooth and transparent. The pulmonary lymph glands were somewhat moist. The arteries and veins showed no change. The pericardium contained a small quantity of clear liquid. The pericardial serosa was smooth and glistening. The right ventricle of the heart was slightly distended, and contained coagulated blood; the left ventricle contained a small quantity of well coagulated blood. The epicardium showed no change, but was poor in fat. The myocardium was pale. The periportal lymph glands were slightly moist and enlarged. The liver-capsule was smooth, glistening and transparent. The gall-bladder contained a small quantity of liquid bile. The ductus choledochus was open. The bile duct of the left lobe contained two flukes. The mucosa of the bile ducts showed some reddish patches. The liver parenchyma was dark brown, and fairly hard. The pancreas showed no change. The atrial lymphatic glands were somewhat enlarged, about the size of a small fowl's egg; they were moist on section. The spleen (36 by 14) was somewhat thickened. The capsule in parts was shrivelled. The parenchyma was somewhat grey. The lymph follicles were very distinct. The trabeculae were not visible. The suprarenal glands were rather small and dark brown. The adipose capsule of the kidney was rather poor in fat and somewhat watery. The fibrosa stripped easily. The parenchyma was dark brown. The zones were distinct. The consistence was normal. The rumen contained normal ingesta, the reticulum some liquid contents. The mucosa of both was normal. The omasum contents were moist, of the abomasum liquid. The fundus portion of the latter, particularly the leaves, were injected and ecchymoses were present. The mucosa of the pylorus was diffusely reddened. Duodenum and jejunum contained a viscid mucus. Their mucosa was slightly swollen and reddened throughout the whole length. A considerable length of the ileum showed red cross stripes; the caecum and colon were similarly affected. The rectum contained a number of fairly large faecal balls. The mesenteric lymphatic glands were enlarged and the medulla of some on section appeared hæmorrhagic. The mesentery was poor in fat. The bladder was half empty. The mucosa was normal. The sexual organs showed no change. The brain appeared unusually moist. Blood smear was negative.

Pathological Anatomical Diagnosis: Gastro-enteritis catarrhalis and hæmorrhagica.

Etiological Diagnosis: Lamsiekte.

3. POST-MORTEM OF HEIFER 120.—Light red. One year old. The heifer had died during the night. The condition was poor. The abdomen was slightly distended. Rigor mortis was absent in fore and present in the hind limbs. The integument was intact. Mouth and anus were closed. The visible mucous membrane of the vagina was pale. The blood was well coagulated. The flesh was of a pale colour. The subcutaneous tissue was devoid of fat and in some places jelly-like infiltrations were present. At the site of the inoculation near the shoulder was a necrotic focus about hand size and surrounding tissue was injected with blood. The parotid and submaxillary salivary glands were of normal consistence and colour. The lymphatic glands of the head and the

cervix were slightly enlarged and reddened. Those of the hindquarters showed no abnormalities. There were no changes in the lymphatic glands of the thorax and abdomen. Pharynx and oesophagus had a normal appearance. The peritoneal cavity showed no foreign contents. The peritoneum was smooth and glistening. The situs viscerum was normal. In the pleural cavities a small amount of clear liquid was present. Between the ribs in some places was present a thin layer of granular tissue forming red streaks. The trachea contained some froth. Some froth was also present in the bronchi. It also contained fibrinous flocculi. The lungs were in half inspiratory stage. They were elastic, with the exception of a focus in the right lung, in which an echinococcus cyst was present. The lung tissue was rich in blood and moist. The pleura of the basal lobe was unusually whitish on both sides, otherwise smooth and glistening. The arteries and veins showed no changes. The pericardium contained 80 c.c. clear liquid. The parietal serosa was smooth and glistening. The right heart was fully distended with well coagulated blood. The left heart was partly distended. The fat at the base of the heart and in the grooves was jelly-like, transparent, and watery. The epicardium was transparent. The endocardium and intima of arteries and veins showed no change. The myocardium was somewhat hard, and of a brown colour. The periportal glands showed no change. The capsule of the liver was smooth and glistening. The parenchyma was rather dark brown and smooth on section. The consistence was fairly hard. The gall-bladder was half distended with yellow liquid bile. The ductus choledochus was open, also the bile ducts. The pancreas showed no change. The atrial lymphatic glands were of usual appearance. The spleen (32 by 13 cm.) was slightly thickened. The pulpa was dark brown. Trabeculae and follicles were not distinct. The suprarenal glands appeared rather small and were dark brown in the cortex. The adipose capsule of the kidney was devoid of fat. The fibrosa stripped easily. The right kidney was light brown, the left was darker and the zones were not well marked. The consistence was fairly hard. The rumen contained a normal amount of ingesta. Amphistomas were present. Two hair balls were found, one the size of a cricket ball. The other was slightly smaller. The reticulum was almost empty. The omasum contained moist ingesta and the abomasum liquid ingesta. The mucous membrane of the fundus was uniformly reddened. The mucosa of the duodenum was rough and reddened throughout the whole length. The intensity of the colour varied in different parts. The mucosa of the jejunum was patchy in parts and distinctly hæmorrhagic. Red cross stripes were present throughout the whole length. A portion was blackish. The apex of the caecum was red. There were red patches in several parts of the colon. The rectum contained fairly dry faeces. The mucosa was patchy red. The mesenteric glands appeared unusually dark, but in size were normal. The mesentery was devoid of fat. The bladder was distended with clear urine. The lymph glands of the bladder were hæmorrhagic. The brain showed no change. Blood smear negative.

Pathological Anatomical Diagnosis: Gastro-enteritis catarrhalis and hæmorrhagica. Hair balls in rumen. Echinococcosis of the liver.

Etiological Diagnosis: Lamsiekte.

4. TOLLIE 181.—Post-mortem report of tollie. The autopsy was made one hour after death. Rigor mortis was absent. The abdomen relaxed. The natural openings were closed. The visible mucous membranes were pale. The blood stained fairly well. The flesh was pale. The subcutaneous tissue was devoid of fat and at various places on the right side were some gelatinous infiltrations. The salivary glands and thyroidea showed no change. The superficial lymphatic glands of the trunk were of normal size, but embedded in a gelatinous substance. The tongue showed no change. The mucous membrane of the pharynx and that of the oesophagus were pale. The trachea was filled with froth. The mucous membrane was pale. The rumen and omentum were attached by long fibrous bands to the parietal serosa of the costal arc; otherwise the serosa was smooth and glistening. The diaphragm was convex forward. In the pleural cavities were traces of liquid. The costal pleura was smooth. The lungs were not completely contracted. On section the tissue was found to be moist and fairly rich in blood. The pulmonary blood vessels showed no change. The bronchi contained froth and ingesta. Their mucous membrane was pale. The thoracic portion of the oesophagus showed no change; neither did the lymph glands of the thoracic cavity. The pericardium was attached to the epicardium by fibrous adhesions. Its removal was difficult. The heart muscle had not yet set. The right ventricle appeared much dilated. The endocardium of both sides had a normal

appearance. The myocardium was red brown, transparent, and firm. Where the epicardium was attached to the pericardium, fibrous thickenings were present. The periportal glands showed no change. The liver appeared slightly enlarged. The capsula was smooth and glistening. The left border was somewhat blunt. The gall-bladder was distended with green liquid bile. Its mucous membrane was yellow, and the vessels were injected. The bile ducts were open. The vena porta, vena cava, and vena hepatica showed no change. The parenchyma of the liver was red-brown, smooth on section, rich in blood, and of rather soft consistence. The pancreas was white and soft. Spleen (43 by 14 cm.) was somewhat thickened. The vessels of the capsule were injected and blue in colour. On section the parenchyma appeared black, protruding, but was fairly firm. The follicles and trabeculae were not distinct. The suprarenal glands had a pale cortex. The left kidney capsule was poor in fat. The fibrosa stripped easily. The surface of the organ had a reticulated tracing; the cortex was striated. The intermediary zone was pink, the hilus was watery. The right kidney showed similar conditions. The rumen was filled with ingesta. Amphistomas were present in the dorsal section and in the atrium and both sides of the atrio-reticular folds. The reticulum was filled with ingesta. The mucous membrane showed no change. The omasum and abomasum had soft contents. The mucous membrane of the fundus was pink, that of the pylorus was not altered. The mucosa of the jejunum was reddish, discoloured in patches, and cross-stripes to a considerable extent. The rectum was empty. The mucous membrane showed no change. The mucous membrane of the colon was folded longitudinally and that of the caecum wrinkled. The mesenteric glands appeared slightly enlarged and conspicuously black in their medulla. The mesentery was poor in fat and watery. The bladder contained clear urine. The mucous membrane appeared normal. The sexual organs showed no change. The vessels of the pia mater were injected. The dura mater showed no change. The cerebrum was fairly rich in blood. The substance appeared normal. On examination blood smears proved to be negative.

Pathological Anatomical Diagnosis: Anaemia, pericarditis fibrosa, peritonitis fibrosa, gastro-enteritis catarrhalis.

Etiological Diagnosis: Lamsiekte.

5. Cow 3708.—A six-tooth red and white cow in poor condition. The autopsy was made three hours after death. Rigor mortis was present. The abdomen was slightly distended. The integument was intact. The natural openings were closed. The visible mucous membranes were pale. The blood was somewhat watery and badly staining. The flesh was pale. The subcutaneous tissue was devoid of fat and watery in places. On the left shoulder (at seat of inoculation) a patch of fibrous thickening was noted. The salivary glands were embedded in a jelly-like tissue, particularly the submaxillaries. The lymphatic glands were of usual size, but pale and embedded in watery tissue. The tongue and oesophagus showed no change. The peritoneal cavity showed no foreign contents. The diaphragm was convex forward. The pleural cavities showed no foreign contents, the pleura was smooth and glistening. The lungs were partly contracted. The costal surface was blue. The tissue was elastic, rich in blood, and somewhat moist. A fair amount of froth was found in the bronchi, and the thoracic trachea. The pleura was transparent and smooth. The pericardium contained about 100 c.c. clear liquid with a white flocculus. The right ventricle was distended with a well-formed clot. The left ventricle was contracted and contained a small clot. The endocardium and vessels showed no changes. The epicardium showed a little fat at the base. The myocardium was pale red and slightly opaque. The periportal lymph glands showed no change. The liver appeared enlarged with borders rounded. Fibrous thickenings of the capsule on the dorsal aspect of the right lobe were noted; otherwise it was smooth and glistening. The parenchyma on section was dark brown, smooth and fairly firm in consistence. The gall-bladder was distended with green liquid bile. The mucosa of the gall-bladder was yellow with ramified injections. The ductus choledochus was open. The left bile duct showed a constriction in the middle of the lobe. The pancreas was somewhat rich in blood and unusually moist. The atrio lymphatic glands showed no change. The spleen (38 by 11 cm.) showed a dark brown parenchyma. The trabeculae and follicles were visible. The consistence was firm. The suprarenal glands showed a red-brown cortex; in parts it was striated. The adipose capsule of the kidneys contained vestiges of ochre-yellow fat. The fibrosa stripped fairly easily. The parenchyma of the kidneys was dark red-brown, the intermediary zone was still darker. The consistence was firm. The

rumen contained normal ingesta, likewise the reticulum and omasum. Their mucosa showed no change. The mucosa of the abomasum was dark pink in the fundus and somewhat lighter in the pylorus. The duodenum was diffusely reddened. The jejunum showed in parts faint cross-stripes. The caecum and colon were in parts patchy red. The rectum contained normal faeces. The mesentery was watery. The mesenteric lymph glands were of usual size and conspicuously black. The bladder contained a little clear urine. The sexual organs were normal. No changes were recorded in the nervous system. On examination blood proved to be negative.

Pathological Anatomical Diagnosis: Anaemia, cachexia, cicatricial tissue on left neck, gastro-enteritis catarrhalis, hyperaemia of kidneys, lungs, liver.

Etiological Diagnosis: Lamsiekte.

6. HEIFER 128.—A two-year-old black heifer in poor condition. The autopsy was made two hours after death. Rigor mortis was absent. The abdomen was relaxed. The integument was intact. Mouth and anus were closed. The visible mucous membranes showed no change. The blood was not completely coagulated, staining fairly well. The flesh was pale. The subcutaneous tissue was devoid of fat. On the off-side of neck was an abscess containing evil-smelling liquid pus. The right parotid appeared hard; it was embedded in a watery connective tissue. The right superficial cervical lymph gland was much enlarged and hæmorrhagic. The lymph glands of the trunk and head were moist and embedded in a watery connective tissue. The tongue showed no change. The mucous membrane of pharynx and oesophagus was somewhat pale. The larynx and trachea contained a little froth. Their mucous membranes showed no change. The thyroid gland was somewhat moist and light brown. The peritoneal cavity showed no foreign contents. The situs viscerum was normal. The serosa was smooth and glistening. The diaphragm was convex forward. The pleural cavities contained about 50 c.c. clear liquid. The costal pleura was smooth and glistening. The mediastinal and bronchial lymph glands were somewhat watery. The mediastinum was gelatinous. The pleura of lungs was smooth and glistening and transparent. The consistence of the lungs was elastic. On section the parenchyma was somewhat moist. The bronchial and thoracic trachea were filled with froth. Their mucosa showed no change. The pulmonary vessels were empty. The pericardium contained about 50 c.c. clear fluid. The parietal serosa was smooth and glistening. The right ventricle of the heart was empty and slightly dilated. The left ventricle was also empty and contracted. The epicardial fat was replaced by a jelly-like substance. Some ecchymoses were noted at the base of both ventricles. The endocardium showed no change, neither did the vessels. The myocardium was pale brown-red and transparent. The consistence was firm. The periportal lymph glands were somewhat moist. Liquid escaped on section. The liver was of normal size and shape; its colour was purple. The capsula was smooth and glistening. The ductus choledochus was open. The gall-bladder was distended with brown yellow bile. The mucous membrane was brown yellow. The vessels were injected. The bile ducts showed no change. The parenchyma on section appeared red-brown; somewhat granular and glossy. The consistence was firm. The pancreas was somewhat moist and the supporting connective tissue was watery. The colour was yellow grey. The atrio-lymph glands were somewhat enlarged and red. The spleen (41 by 12 cm.) showed a slightly tense capsule. The parenchyma was red brown, fairly firm. The trabeculae and follicles were visible. The cortex of the right suprarenal gland was slightly red, pale striated. The cortex of the left was slightly yellow. The adipose capsule of the kidneys was devoid of fat and watery. The fibrosa stripped easily. The surface of the organ was smooth, and in parts showed a fine reticulated tracing. On section the zones were distinct. The colour was red brown. The intermediary zone was dark. The hylus was gelatinous. The consistence of the organ was firm. The rumen contained coarse ingesta. At the rumino-reticular fold were clusters of amphistoma, also a few were present in the ventral and dorsal sacs. The reticulum contained some coarse food. The mucous membranes showed no change. The omasum and abomasum contained soft ingesta. The mucous membrane of the fundus was somewhat pink; on the ridges of the folds were a few small black erosions. There was also a number of whitish erosions on the mucosa, between the folds, the size of a bean. The pylorus showed a few superficial erosions. There were small white areas in the mucosa, of which the centre could easily be removed, leaving an erosion as described. The mucosa of duodenum, jejunum and ileum was reddened and covered with mucus; in some parts it was distinctly hæmorrhagic and in others

red-cross striped. A taenia was present. The mucosa of the caecum and colon was reddened, but not so intensely as that of the small intestines. The mucosa of the rectum was covered with mucus. The mesentery showed no fat; the glands were embedded in watery tissue; moist and conspicuously black. The bladder contained a small quantity of clear urine. The mucous membrane was normal. The sexual organs showed no change. The brain was somewhat pale. Examination of blood smear revealed anisocytosis and piroplasma mutans.

Pathological Anatomical Diagnosis: Gastro-enteritis catarrhalis and hæmorrhagica. General atrophy and cachexia. Oedema of lungs. Taeniasis. Abscess in subcutaneous tissue of neck.

Etiological Diagnosis: Lamsiekte.

7. Cow 2886.—Died during night. The condition was poor. Rigor mortis was present. The abdomen was not distended. The peritoneal cavity and the peritoneum showed no change. The pleural cavity was normal. The pericardium had no foreign contents, and the serosa was smooth and glistening. The epicardium showed some ecchymoses. In the liver, post-mortem changes were marked. The gall-bladder was half distended with yellow greenish bile. The spleen had a normal appearance. The kidneys were rich in blood. The lungs were distended and rather large. Foam was present in the trachea and in the bronchi. There was thick mucus present in the oesophagus. Some of the bronchi were blocked with salol. The rumen contained normal ingesta. The mucosa of the abomasum was diffusely reddened. The reticulum was empty. The mucosa of the caecum was diffusely reddened. The jejunum, for about 25 yards, showed marked patchy reddening, varying in colour from light pink to blackish red. The bladder showed no alteration.

Pathological Anatomical Diagnosis: Gastritis and enteritis catarrhalis. Foreign substance in bronchi.

Etiological Diagnosis: Lamsiekte.

8. Cow 2315: An aged cow in poor condition. Died during night. Rigor mortis was present. The abdomen was distended. The abdominal walls were somewhat greenish. The integument showed abrasions. The tongue was between the lips. Anus and vulva were closed. The blood was coagulated. The flesh on section was dark brown. The subcutaneous tissue was devoid of fat and in parts contained gelatinous infiltrations; some places were ochre-coloured. On the right side of the neck was an abscess with necrotic contents; also on the left (seat of injections). The parotid showed no changes. The superficial lymphatic glands were somewhat dark in colour and embedded in gelatinous tissue of ochre colour. In the superficial cervical lymph nodes some gas was present. The tongue showed no change. The mucosa of the pharynx was purple, and a mucous deposit was present. The mucosa of larynx and trachea were greenish and showed some ecchymoses. No foreign contents were present in the peritoneal cavity. The intestines were slightly distended with gas. The diaphragm was convex forward. The sixth to the twelfth ribs of the left side showed old healed fractures (Callus). On the ninth rib were two such fractures. In the intercostal spaces a low tuft-like granular tissue and fibrous thickening was noted, extending over the calli and ventral portion of the ribs. Under the costal pleura gas-bubbles were observed. In the intercostal spaces granulation tissue was seen, as described above. The right wall of the chest showed no change. The lungs were purple. Gas-bubbles were present under the pleura. The tissue of the lungs was elastic everywhere, except on the left ventral margin and the posterior portion of left diaphragmatic lobe, which contained solid foci. These foci were moist, and on section liquid escaped. The intima of the pulmonary vein and arteria was red. The mucosa of the bronchi and trachea was greenish. The aorta abdominalis showed pitted streaks throughout its whole length and breadth. The intima of aorta thoracica was smooth, except at the cicatrix of the ductus botalli, where a somewhat pitted area was present, similar to that described in the abdominal aorta. The pericardium was stained red, and contained a considerable quantity of liquid. The right ventricle and atrium were distended with coagulated blood. The epicardium was dark brown-red, and in both ventricles showed a number of ecchymoses. Only traces of fat were present. The endocardium of the right ventricle was diffusely red. The myocardium was opaque and light brown. The liver showed gas under the capsule. The left lobe was somewhat sharp. It had a grey colour. On section, much gas escaped. The parenchyma was opaque and clay-coloured. The gall-bladder was half filled with yellow bile. Two triangular bile stones were present. The pancreas was soft and moist, and red-grey in colour. The spleen capsule was

shrivelled. The pulpa was liquid and brown. The trabeculae and follicles were indistinct. The suprarenal glands were brown. The fat capsules of the kidney were poor in fat. The fibrosa was easily detached, and, underneath, gas-bubbles were present. The organ was clay-coloured and moist. The rumen contained coarse ingesta. The reticulum contained a small quantity of liquid. The omasum was half empty and contents were soft. The abomasum contained a small quantity of liquid. The mucosa was slate-coloured. A nail was present in the lumen. The mucosa peeled off. The mucosa of the small intestine was slate-coloured throughout; that of the large intestine showed similar conditions. The mesenteric glands were moist. The mesentery was devoid of fat. The sexual organs showed no change. The udder was somewhat soft. The dura and pia mater showed nothing unusual. Gas was present in the blood-vessels of the meninges. The brain substance was moist and soft. Blood-smear showed putrefactive bacteria.

Pathological Anatomical Diagnosis: Subcutaneous necrosis in neck. General atrophy. Pneumonic foci. Ecchymoses in heart. Pleuritis fibrosa. Necrosis of the media of the aorta. Advanced post-mortem changes.

Etiological Diagnosis: Lamsiekte.

9. HEIFER 4152: A two-tooth heifer in poor condition. The animal was killed, and the autopsy was made five hours later. Rigor mortis was not complete. The abdomen was relaxed. The integument showed abrasions. Anus, vulva, and mouth were closed. The visible mucous membranes showed no change. The blood was coagulated, staining fairly well. The subcutaneous tissue was devoid of fat. A large focus of necrotic substance was found on the left side of the neck. The parotids were dark in colour. The submaxillary lymphatic glands showed no change. The thyroidea was glossy and light brown. The tongue showed no change, likewise the pharynx, oesophagus, larynx, and trachea. The peritoneal cavity showed no foreign contents. The peritoneum was smooth and glistening. The diaphragm was convex forward. The pleural cavities showed no foreign contents. The costal pleura of left side was smooth; but slightly thickened near the sternum. The lungs were pink in colour and everywhere elastic; on section they were somewhat moist. The intima of the pulmonary veins and arteries and aorta thoracica showed no change. The trachea and bronchi contained a little froth. The pericardium contained a few c.c.'s liquid. The parietal serosa was smooth and glistening. The right ventricle of the atrium and heart was distended with well-coagulated blood. The epicardium was pale blue-brown and contained some fat. The left ventricle contained a small quantity of blood. Both endocardiums were pale brown. The intima of the vasa cordis was normal. The myocardium was pale brown and moist; the consistence was firm. The intima of aorta abdominalis showed no change; likewise that of the vena cava abdominalis. The periportal lymph glands were somewhat moist. The intima of vena portae showed no change. The liver was a little enlarged; the left lobe was somewhat rounded. The capsule was smooth and glistening. The parenchyma was dark brown, somewhat granular, and the consistence somewhat firm. The gall-bladder was half full of green liquid bile. The ductus choledochus was open. The pancreas was greyish. The spleen (43 by 12 cm.) showed a brown pulpa. The follicles were enlarged and distinct; the trabeculae not so. The consistence was fairly firm. The adipose capsula of the kidneys contained some fat. The fibrosa stripped easily. The cortex was brown, the medulla red. The surface of the kidneys was smooth. On section, the zones were distinct. The intermediary zone was dark. In parts of the cortex the Malpighian bodies were distinct. The consistence was firm. The rumen had moist ingesta. Amphistomas were present behind the rumeno-reticular fold. The mucous membrane showed no change. The reticulum was empty. The omasum had soft contents. The abomasum showed soft contents. The mucosa was purple brownish in the fundus, and patchy red-yellowish in the pylorus region. The mucosa in parts of duodenum and jejunum was diffusely red, and red cross stripes were present in the greater portion. The mucosa of caecum and colon in parts was discoloured. The rectum contained faeces covered with mucus. The mucosa was normal. The mesentery contained a small quantity of fat. The mesenteric lymph glands were rather small and conspicuously pigmented. The bladder was distended with normal urine. The mucous membrane showed no change. The uterus was normal, likewise the udder. The frontal lobe of the brain was conspicuously pigmented. Blood-smears were negative.

Pathological Anatomical Diagnosis: Gastro-enteritis catarrhalis. Necrosis of subcutaneous tissue on neck.

Etiological Diagnosis: Lamsiekte.

10. HEIFER 150: A two-tooth red heifer in poor condition. Died during the night.

Post-mortem Report: Rigor mortis was present. The abdomen was relaxed. The mouth was open, the tongue hanging out on the left. The nostrils showed no change. Anus and vulva were closed. The eyes were sunken. The visible mucous membranes showed no change. In the oral cavity was a bolus of food. The blood was coagulated and stained well. The flesh was somewhat darkish. The subcutaneous tissue showed traces of fat. A peculiarly yellowish discoloration was noted in the fasciae and aponeuroses. In the region of the neck was a patch of connective tissue formation, blackish discoloured, and containing a necrotic focus. The corresponding lymph nodes were much enlarged. The parotid and submaxillary glands were of normal consistence and colour. The thyroid was light brown and glossy. The lymphatic glands on the left side of the head were slightly enlarged and reddened. Those of the right side showed no change. The mediastinal and bronchial lymph glands were somewhat moist. The tongue showed no change, likewise the cervical oesophagus. In the pharynx were some pieces of grass. The palatinum showed no change. The situs viscerum was normal. The abomasum and reticulum were attached by fibrous threads to the diaphragm. The peritoneal serosa was smooth and glistening. The diaphragm was convex forward. The costal pleura was smooth and glistening, with the exception of the ventral portion of the ninth rib, where a hæmorrhage was present, about 6 cm. in extent. The apex of the right lung was attached by a fibrous ligament to the costal wall. At this place the costal pleura was roughened, otherwise it was smooth and glistening. The lungs were in inspirium, pink in colour and elastic in consistence. The pleura was smooth and transparent. The parenchyma was somewhat moist. On section some blood escaped. The pulmonary veins were empty. The intima and pulmonary arteries showed no change. The bronchi contained a small quantity of froth; the mucosa showed no change. The thoracic oesophagus was empty; the mucosa showed no change. The thoracic trachea contained some froth, and the mucosa was somewhat injected. The pericardium showed traces of fat; it contained about 30 c.c. clear fluid. The pericardial serosa was smooth and glistening. The epicardium showed some fat at the base and along the grooves. The colour was red-brown, and numerous petechiæ were present on both ventricles, particularly along the grooves. The endocardium showed no change. The myocardium was slightly pink-brown and of firm consistence. The thoracic aorta showed no change. The periportal lymph glands were somewhat enlarged and moist. The liver had normal size and shape. The colour was purple. A whitish patch was observed on the parietal portion of right lobe. The left lobe on visceral aspect showed the lymph vessels somewhat prominently. The gall-bladder was distended with yellow liquid bile. The parenchyma on section was reddish brown, moist, rich in blood, and of firm consistence. The bile ducts were filled with bile. The ductus choledochus was open. The mucosa was brownish, the vessels were injected. The pancreas was fairly firm. The atrio lymph glands were somewhat moist. The spleen (44 by 13 cm.) was somewhat thickened, the capsula in parts was shrivelled. The follicles were distinct, the trabeculae less so. The consistence was soft. It was dark red-brown. The suprarenal glands were yellowish-red. The adipose capsula of the kidneys contained some fat. The fibrosa stripped easily, the surface of the organ was smooth and red-brown in colour. On section the zones were distinct. The medulla was injected. The intermediary zone was somewhat dark. The consistence was firm. In the dorsal-caecal portion of the rumen and behind the rumeno-reticular fold were numerous amphistomas. The submucosa showed no change. The ventral sac was filled with somewhat dry ingesta. The reticulum contained somewhat dry ingesta, and pebbles, nails, wire, coal, and pieces of china were present. The pebbles were fairly numerous. A piece of wire was sticking in the laces of the reticulum. The omasum was distended with fairly hard ingesta, but gave way to pressure. The mucosa was peeling off. The abomasum had liquid contents in the fundus; in the pylorus portion were pieces of coal. The mucosa of the fundus was uniformly deep pink. The pylorus portion was only slightly so. The duodenum showed yellow discoloration. The jejunum in the greater part was red, patchy in parts, and cross-striped in others. Parasitic nodules were noted towards the ileum. The mucosa of the caecum was slightly swollen and patchy red. The colon showed greyish patchy discoloration. The mesentery was poor in fat. The mesenteric lymph glands were not enlarged. The bladder contained clear urine. The mucosa was injected. The uterus and ovaries showed nothing unusual. The pia mater was somewhat injected.

Pathological Anatomical Diagnosis: Peritonitis fibrosa. Petechiae in epicardium. Pleuritis fibrosa. Oedema pulmonum. Foreign bodies in reticulum. Amphistoma in rumen. Hæmorrhage in costal pleura. Necrosis of subcutaneous tissue on left side of neck. Hyperaemia of liver and kidneys. Gastro-enteritis catarrhalis, partly hæmorrhagica. Helminthiasis nodularis intestinalis.

Etiological Diagnosis: Lamsiekte.

SUB-SECTION E.—CASES OF NATURALLY CONTRACTED LAMSIEKTE OCCURRING ON THE PASTURE DURING THE PERIOD IN WHICH THE EXPERIMENTS WERE CARRIED OUT (NATURAL CONTROLS).

1. RED HEIFER 3908.—Born at Armoedsvlakte on 24.12.16. She was running with the controls since 15.4.18. On 24.4.18 she was placed in the loogas and rooi brak experiment, to determine the influence of this lick on the incident of the disease.

24.2.19: In the afternoon the heifer was reported to be ill. She was placed in the shed at once where she lay down. Examined at 6 p.m. she did not appear to be very ill, being attentive and carrying head and neck well. When the temperature was taken she made an attempt to rise. The temperature record was 102.2° F. On examination of a blood-smear the blood proved to be negative. The diagnosis of lamsiekte was made.

25.2.19: The heifer died during the night.

Post-mortem Report: Light red two-tooth heifer, in good condition. Rigor mortis was not present. The abdomen was not distended. The integument was intact. The natural openings and visible mucous membranes showed no changes. The blood was not completely coagulated, and stained well. The flesh, fasciae, aponeuroses, and subcutaneous tissue showed no changes. The superficial lymph nodes of the trunk were of usual appearance and size. The peritoneal cavity showed no foreign contents. There was no change in the situs viscerum. The peritoneal serosa was smooth and glistening. The diaphragm was curved forward. The pleural cavity showed no foreign contents. The pleura costalis was smooth and glistening. The submandibular and retropharyngeal lymph nodes appeared of usual size, colour, and consistence. No change in the appearance and consistence of the salivary glands was noted. The mucosa of the nasal septum and that of the turbinated bones were bluish in colour and the vessels were injected. The tongue and the mucosa of the pharynx showed no changes; in the cesophagus were some ingesta. The larynx was empty, the mucosa showed no changes. Some froth and traces of ingesta were present in the cervical trachea. The mucosa showed no changes. The thyroidea showed no abnormality. Froth was present in the bronchi, and the parenchyma of the lungs was moist. The right main lobe of the lungs was bluish discoloured; on section it was fairly rich in blood, and a number of petechiae was visible under the pleura. The pulmonary artery contained a blood coagulum; the vein was empty. The intima of both was smooth. The consistence of the lungs was elastic, it was somewhat turgescens on the right side. The bronchial lymph nodes were somewhat moist. The thymus was present and of fairly large size. The pericardium contained a small quantity of clear fluid. The serosa was smooth and glistening except at a place near the base of the heart opposite the conus arteriosus, where a patch of fine tuft-like granulation tissue was present. Right ventricle and atrium were both filled with a well-formed clot of blood; the left ventricle and atrium contained but a small quantity of blood. The endocardium showed no abnormality; valves and vessels showed no changes. In the epicardium of the right ventricle behind the conus arteriosus a small patch of fine tuft-like granulation tissue was present. Otherwise it was smooth and glistening. The myocardium was of a red brown colour, shiny, and of firm consistence.

The liver showed no change in size and shape; the capsule was smooth and glistening. The periportal lymph nodes were of usual size and somewhat moist on section. The colour of the parenchyma was red brown. On section it was glossy and smooth. The consistence was fairly firm. Green liquid bile was present in the gall-bladder, the ductus choledochus was open. The spleen was slightly swollen. A fair amount of fat was present in the capsule; in the ventral third of the parietal side a suffusion was noted. The parenchyma

was fairly rich in blood; the trabeculae were not distinct. The rumen contained a fair amount of ingesta. The mucous membrane was of usual aspect. The reticulum contained rather moist and soft ingesta. Some small pieces of wire and coal particles were present. The mucosa showed no changes. The omasum was hard. The ingesta were caked and hard between the leaves. The mucous membrane peeled off when these cakes were removed. The abomasum contained soft ingesta and small particles of coal. The mucosa appeared slightly pinkish, especially on the folds. A superficial scar about 6 cm. in length and pigmented black with blood extravasation was present. On the mucosa of the pylorus was a mucous deposit. The small intestines contained some liquid ingesta and mucus. The mucosa throughout the length of the small intestines was more or less reddened and in some parts red cross stripes were present. The mucosa of the caecum was somewhat thickened and reddened and some ecchymoses were noted. The mucosa of the colon showed no changes. The rectum contained well-formed faeces; the mucosa was of usual aspect. The mesentery was rich in fat, the lymph nodes showed no changes in size and appearance. The cortex of the suprarenal glands was diffusely yellow. The adipose capsule of the kidney was rich in fat. The fibrosa stripped easily. The surface of the kidney was smooth; the colour was red brown, the consistence firm. On section the parenchyma appeared shiny, the intermediary zone was somewhat dark, the consistence was firm. The glomerules were hardly visible. A fair amount of fat was present in the hylus. The urinary bladder was empty. The mucosa showed no changes. The sexual organs were of usual appearance. The vessels of the pia mater were slightly injected. The brain showed no changes.

Pathological Anatomical Diagnosis: Gastro enteritis catarrhalis. Foreign bodies in reticulum. Impaction of omasum. Cicatrix in omasum. Pericarditis proliferans (localized). Oedema pulmonum (slight).

Diagnosis of Disease: Lamsiekte.

Epicrisis: The case represented a typical acute case of lamsiekte naturally contracted lasting for less than twenty-four hours. A diagnosis was possible *intra vitam* and was based on the presence of a peculiar gait and the paresis of the locomotor organs, the absence of fever (although 102.2° F. could be regarded as somewhat high) and the examination of a blood-smear. To judge from the general impression the animal did not appear to be ill, as the subsequent early death showed to have been the case. The autopsy revealed the presence of a slight catarrhal gastro-enteritis, a lesion fairly frequently met with in lamsiekte. Of diagnostic importance were the foreign bodies in the reticulum. The scar in the abomasum was most likely of traumatic origin. No bone was found in the stomachs, but the animal was a craver, as was indicated by the foreign bodies found. Since, however, any carrion might cause lamsiekte, the absence of bones at the autopsy could not be interpreted as being contradictory to the diagnosis lamsiekte, besides, the period between the eating of bones and the outbreak of the disease could be of considerable length, so long, in fact, that even a bone might pass through the stomach, if it had not become dissolved and absorbed in the meantime. The same, of course, would not apply to coal, which, therefore, could be found in the stomachs after a much longer period.

2. BLACK Ox 3660.—At Armoedsvlakte since 21.3.17. It was running in the veld since then and used for transport work.

On 9.3.19, when in the veld, the ox was noted to pick and chew a bone.

Anamnesis: On 15th March, 1919, the working oxen were tested for bone-craving, not sterilized old bones being used. Ox 3660 was then noted to be eating bones very eagerly and appeared first on the list of those recorded as bone-eaters.

22.3.19: The ox was noted to be ill this morning; it was somewhat dull and a slight salivation was present. It was placed in the hospital camp. The temperature was 101° F. On examination of a blood-smear the blood was negative. Lamsiekte was suspected.

23.3.19: The ox was found grazing in the early morning. It had a somewhat clumsy walk. It lay down soon afterwards. It was noted to ruminate. During the day it was noted to be down several times.

24.3.19: The ox remained in the veld this morning and was found in sterno-costal position. It rose, however, when forced to do so and walked to the kraal, lying down at intervals. The walk was very clumsy, the front legs were placed wide apart and head and neck were carried low. On arrival in the kraal it went down immediately. Examination of a blood-smear gave negative results. Subsequently the ox was again turned out into the hospital

camp and was found in the afternoon in the shade of a bush. When forced to rise it made an attempt to do so; it raised the hindquarters slightly, but immediately dropped again.

25.3.19: The ox was found behind the same bush. It had shifted slightly from one place to another. It remained down all morning, but had moved about in a circle, apparently in futile attempts to rise. Dry faeces had been passed. The ears were drooping. The diagnosis lamsiekte was definitely made.

26.3.19: The ox was found in the same place where it was left the previous evening. It had passed black faeces during the night. It still carried the head well. The ears were drooping. When supplied with water it drank half a bucket full.

27.3.19: The ox was found stretched out on the left side. When placed into sterno-costal position it was able to maintain it. It was unable to rise and was carted into the shed and put into sterno-costal position, when it immediately commenced to feed. In the afternoon it was found lying down stretched out flat on the ground. It was placed in sterno-costal position and was able to maintain it; it drank some water. An attempt was made to put it on its feet, but the ox was unable to stand.

28.3.19: The ox was found stretched out on the ground. When placed back into sterno-costal position it was able to maintain it only with difficulty. It immediately ate some lucerne placed in front of it. During the day it again went down in lateral position. After it had been put in the sterno-costal position it doubled the head back. The nose and muzzle were dry. The respiration was noticed to be somewhat hurried. It was, however, noted to be hot in the shed.

29.3.19: The ox was found stretched out and breathing with difficulty. It was killed. On examination of a blood-smear the blood proved to be negative.

Post-mortem of Ox 3660: An aged black ox in good condition. Rigor mortis was not present. The integument was intact, the abdomen was not distended. The natural openings and visible mucous membranes showed no changes. The appearance of the flesh was healthy. A fair amount of fat was present in the subcutaneous tissue. The superficial lymph nodes of the trunk were of usual size and appearance. There were no foreign contents in the peritoneal cavity. The situs viscerum appeared to be normal. The peritoneum was smooth and glistening. The diaphragm was curved forward. No foreign contents were seen in the pleural cavities, the costal pleura was smooth and glistening. The mandibular and retropharyngeal lymph nodes were of usual size and appearance. The tongue, pharynx, and oesophagus showed no changes. The larynx and trachea contained some froth, the mucosa was not altered. The right lung was slightly inflated. The lung tissue was elastic throughout, fairly rich in blood, and moist on section. Froth was present in the bronchi; their mucosa showed no changes. The pleura was smooth, glistening, and transparent. The pericardium contained a small quantity of clear liquid. The parietal serosa was smooth and glistening. The right atrium and ventricle were slightly dilated, but empty. The left atrium contained a coagulum extending within the pulmonary veins. A few ecchymoses were present in the endocardium of the left ventricle. No change was noted in the right endocardium. The myocardium appeared slightly opaque. A fair amount of fat was present under the epicardium. The surface was smooth and glistening. The liver was of usual size and shape. The capsule was smooth and glistening. The parenchyma was red brown, and granular and glossy on section. The consistence was firm. The periportal lymph nodes were of usual size and appearance. The gall-bladder was distended with green turbid bile. The ductus choledochus was open. The spleen measured 42 by 15 cm. The parenchyma was somewhat dry and of a brown-reddish colour. The trabeculae were fairly distinct; the follicles could not be distinguished. The suprarenal glands showed no alterations. The adipose capsule of the kidney was rich in fat; the fibrosa stripped off easily. The surface of the kidney was smooth. The colour was red brown. On section no changes were noted. The consistence was firm. The rumen showed normal ingesta; pieces of bones were present in the reticulum. The contents of the omasum were dry and hard. The abomasum contained liquid ingesta. The mucosa showed no changes. The duodenum showed mucous contents. The mucosa throughout the whole length of the jejunum was slightly reddened and swollen. The mucosa of the caecum was reddened; that of the colon showed no changes. The rectum contained dry faeces. The mesentery contained a fair amount of fat; the lymph nodes showed no change as regards size and appearance. The urinary bladder contained a small quantity of normal urine. The brain showed no changes.

Pathological Anatomical Diagnosis: Enteritis catarrhalis. Foreign bodies in reticulum. Impaction of omasum. Oedema pulmonum (slight). Ecchymoses in septum cordis.

Diagnosis of Disease: Lamsiekte.

Epicrisis: The case was one of subacute lamsiekte, in which the locomotor system was mainly involved. The normal temperature and the negative results of the blood examination, together with the general evolution of the symptoms from a stiffness to a paresis and subsequent paralysis of the locomotor system were typical for this disease. It lasted about seven days. The animal was killed *in extremis*. The autopsy showed the presence of a slight enteritis catarrhalis, usually found in lamsiekte, and of bones in the reticulum. The ox had been tested on one occasion, seven days before the onset of the disease, with old bones and found to be a bone-eater; previously it had been noted in the veld to have been chewing a bone. A history of bone-eating was thus clearly established. It was uncertain whether the disease was contracted from eating the old bones. These were not sterilized at the time, and, of course, might still have included some toxic ones. When a sample of the same lot was subsequently tested, it gave negative results, which, however, did not exclude the possibility alluded to before. When the bones were subsequently sterilized and used for tests, no more cases of lamsiekte occurred. Since, however, there was some doubt about the toxicity of the bones used for testing, the case might be considered to be one naturally contracted, and since the ox was apparently a ravenous bone-eater, the necessary conditions leading to the contraction of the disease were present.

3. BLACK TOLLIE 4341: Born at Armoedsvlakte 3.1.18. It was placed amongst the controls since 6.3.19.

Anamnesis: The tollie was noted to be picking and chewing bones in the veld on the following dates: 13.3.19, 26.3.19, 27.3.19, 2.4.19, 3.4.19, 5.5.19. It had been tested for craving with rotten bones and gave positive results on 16.3.19 and with bleached old bones on 21.3.19.

11.4.19: The tollie was noted to be ill in the morning, showing a temperature of 101.4° F. It was lying down but able to rise, showing, however, some reluctance to do so when forced. In the afternoon and in the evening the tollie was unable to rise. On examination the blood proved to be negative. The diagnosis lamsiekte was made and the animal submitted to treatment with camphor.

12.4.19: The tollie was in sterno-costal position. From time to time it made attempts to rise and was able to lift the hindquarter slightly, but dropped it immediately, and in so doing slightly shifted forward. It refused all food and water during the day. The ears were slightly drooping.

13.4.19: The tollie had shifted from its place during the night. It was put on to fresh bedding. Soon afterwards it was noted to ruminate. In the afternoon it had again shifted, apparently in an attempt to rise. It was ruminating and somewhat brighter than before. It was again treated with camphor.

14.4.19: The tollie had again shifted from its place. It was masticating some hay, parts of which were still sticking out between the lips. The masticating movements lasted an unusually long time. One hundred movements were counted before deglutition took place, but there must have been twice as many before counting was commenced. Subsequently mastication was discontinued. The animal was again treated with camphor.

15.4.19: The tollie was found stretched out on one side. It was put back into sterno-costal position and was able to maintain it all day long. Treatment with camphor was continued.

16.4.19: The tollie was found this morning in sterno-costal position. It was taking in food and masticating it. There was an appearance of improvement. Treatment with camphor continued.

17.4.19: The tollie was in sterno-costal position, feeding and drinking. The faeces were of liquid consistence. The expression of the animal was fairly lively. Treatment with camphor was continued.

18.4.19: The animal was feeding and drinking. It was also noted to ruminate. When lifted on to its feet it was unable to stand, and not even attempted to do so.

19.4.19: The tollie was in sterno-costal position and looked fairly bright. The muzzle was noted to be moist. At times the eyes were conspicuously staring. The animal made an attempt to rise, and in doing so brought the head forcibly down, so that it struck the ground. It was, however, unable to lift the hindquarters. It was reported to have been feeding and drinking.

When closely observed in the afternoon, it was noted that the prehension and mastication of food was carried out very slowly. Camphor treatment was repeated to-day.

20.4.19: The tollie was in sterno-costal position, looking bright. It was feeding and was subsequently noted to ruminate. The muzzle was moist, and the animal was licking the nostrils at intervals. It was striking that no, or at least no appreciable, loss of condition had taken place.

21.4.19: The tollie had shifted from the place where it was yesterday. It was feeding. The faeces were dry and black.

22.4.19: The tollie was still in the same position where left the previous day. It was noted to take in food and subsequently it was seen ruminating.

23.4.19: The tollie was still in sterno-costal position and in the same place where left last evening. It carried head and neck well, the muzzle was moist. At times it doubled the head back, and the eyes were staring, whilst at other times they were quite lively. Feeding, drinking, and rumination was noted.

24.4.19: The tollie was in the same position as yesterday. It carried the head well. At times it doubled the head back; it looked bright and was feeding well.

25.4.19: There was no change in the condition of the animal as compared with yesterday. The tollie gave the impression of a healthy animal resting. The look at times still appeared to be staring and vacant.

26.4.19: The tollie was in sterno-costal position, with head doubled back; it lifted it as soon as it was approached.

27th to 30th: The animal was constantly in sterno-costal position, looking bright and feeding well.

1.5.19: No changes were noted.

2.5.19: The tollie rose voluntarily and without any assistance this morning and walked for a short distance. The rest of the day it was lying down and feeding.

3.5.19: The tollie again rose by itself. When made to walk it showed a slightly stiff gait. It soon went to lie down, and remained practically all day long in sterno-costal position. It was feeding well. The animal had lost somewhat in condition, but not to any marked extent.

4 to 9.5.19: The animal completely recovered from lamsiekte and was discharged.

Epicrisis: The case was of the chronic type, affecting the locomotor system and ending with recovery. At a certain time the masticatory system was also affected, the animal requiring an unusually long time to chew the food before deglutition. However, the latter function never seemed to have been affected. The animal was treated with camphor. In view, however, of similar treatment with negative results in other animals suffering from lamsiekte, recovery could not be put down to this treatment.

The tollie had a history of repeated bone-eating, having been noted in the veld six times, and found to be eating both rotten and bleached bones in an old-bone and bleached-bone test. The interval between the last picking of bones on the veld and the outbreak of the disease was eleven days, and it was possible that the two were connected. Since, however, the animal could not possibly have been under observation all the time when in the veld, and certainly was not at all during the night, it was possible that it might have been picking at other times as well.

4. BLACK AND WHITE OX 2267: It arrived at Armoedsvlakte on 16.8.16 and was running in the veld. It was a transport ox.

Anamnesis: On the 5th April, in a bone-craving test with old bones, this ox was noted to pick and eat bones.

9.4.19: In the morning the ox was noticed to be salivating. It had a somewhat clumsy walk, suggesting at once that the animal was suffering from lamsiekte. The temperature was 100° F. On examination the blood was negative, and, accordingly, the diagnosis lamsiekte was made, and the ox was submitted to treatment with camphor. The application was by drenching. The ox did not easily swallow the drug, and when released plenty of liquid and mucus escaped from the mouth. The treatment was repeated in the afternoon and in the evening.

10.4.19: The ox this morning was found in sterno-costal position and unable to rise, looking fairly bright. The camphor treatment was repeated. In the afternoon the ox was still in the same position and ruminating.

11.4.19: The ox was found in sterno-costal position. In the afternoon it was lying on the side showing dyspnoea. It died in the evening shortly after sunset.

Post-mortem of Ox 2267: An aged ox in very good condition. Rigor mortis was present. The abdomen was slightly distended. The integument was intact. Some blood was noticed to escape from the nostrils. The flesh in parts was diffusely deep red due to the dissolution of blood. The subcutaneous tissue was rich in fat. In parts, putrefactive emphysema was present. The superficial lymph nodes of the trunk were rather small; those of the head (mandibular, subparatoid, and retropharyngeals) were somewhat enlarged and hæmorrhagic. No foreign contents were noted in the abdomen. The peritoneum was smooth and glistening. The diaphragm was convex forward. Some hæmoglobin-stained liquid was present in the pleural cavity; the costal pleura was reddish-stained; in some of the intercostal spaces were streaks of a small tuft of granulation tissue. In some parts under the pleura costalis gas bubbles were present. The mediastinum was reddish discoloured. The tongue showed no changes. The mucosa of the pharynx was bluish discoloured. The oesophagus contained some ingesta. The salivary glands showed no changes. The mucosa of the larynx and that of the trachea and bronchi were diffusely reddened; they contained some froth. The lungs were partly in inspiratory stage and filled with blood. Emphysema was noted in right apex and middle lobe. A portion of the middle lobe was consolidated, and on section small necrotic foci were found. The pericardium contained a small quantity of red-stained liquid; the parietal serosa was also red-stained. The right ventricle and atrium were much distended with well-coagulated blood; the left ventricle contained less blood. The right endocardium was stained diffusely wine red, less so the left endocardium. In the septum were some ecchymoses. The epicardium was also red-stained, in some parts more intensely than in others. The myocardium was opaque; the liver showed no change in size and shape. The capsule was smooth and glistening. The periportal lymph nodes showed no change in size; the parenchyma was clay-coloured, opaque, and soft (decomposed). The gall-bladder contained only a small quantity of green bile. Gas bubbles were present under the mucosa of the bladder. The ductus choledochus was open. The spleen was enlarged, 65 by 18 cm. The pulpa was soft, almost liquid; both trabeculae and follicles were indistinct. The rumen contained normal ingesta, and in the dorsal sac pieces of bones were present; they were also found in the reticulum. The omasum was of soft consistence. In the abomasum were liquid contents; no changes were noted in the mucosa. In the duodenum some mucus was present. The jejunum in parts showed diffuse reddish discoloration, and in parts distinct hæmorrhagic patches. The mucosa of the caecum showed black streaks. They were also present in the ansa proximalis of the colon. The mesentery was rich in fat. The lymph nodes were rather small. The cortex of the suprarenal glands was distinctly yellow. The adipose capsule of the kidney was rich in fat; the fibrosa was easily detached. The surface of the organ was smooth. The colour was dark red-brown; on section the zones were distinct; the consistence was fairly firm. The bladder was filled with clear urine. The brain showed no changes.

Pathological Anatomical Diagnosis: Enteritis catarrhalis. Foreign bodies and bones in the rumen and reticulum. Tracheitis and bronchitis hæmorrhagica. Broncho-pneumonia mortificans. Post-mortem changes.

Diagnosis of Disease: Lamsiekte.

Epicrisis: The case was one of acute lamsiekte, affecting the locomotor system and ending in death after a duration of two days. It had been treated with camphor. The autopsy revealed the presence of an enteritis catarrhalis, usually found in lamsiekte. Bones were present in the rumen and the reticulum. The animal had been submitted to a bone-eating test with old bones, and four days later it was found suffering from lamsiekte. The same remarks as in the case of ox 3660 could be made here. If a coincidence, it is, to say the least, a remarkable one, that these two oxen should contract lamsiekte within the typical incubative period after eating bones, although the bones had not been proved to be toxic, remembering at the same time that no more cases of lamsiekte occurred after the same lot of bones had been sterilized, the tests having been continued at regular intervals. Since the toxicity of the bones was not proved, the case was considered as one naturally contracted.

5. BLACK Ox 2641.—At Armoedsvlakte since 16.8.15, grazing in the veld, and used for transport work.

Anamnesis: The ox was tested for craving on the 15.3.19 with old bones, and again on 5.4.19, and both times was recorded as a bone-eater.

22.4.19: The ox was noted to be ill and lying down in the morning. The temperature was 101° F. The examination of a blood-smear gave negative results. The diagnosis of lamsiekte was made. The animal was submitted to treatment with camphor.

23.4.19: In the morning the ox was standing and feeding. Subsequently it lay down in sterno-costal position. The faeces were black and somewhat dry. The muzzle was moist.

24.4.19: The ox was in sterno-costal position and feeding. The prehension of food and mastication were carried out very slowly. The muzzle was wet. During the day the ox was noted to lie with the head stretched out resting on the mandible. The camphor treatment was repeated.

25.4.19: The ox was stretched out this morning on the left side, and when put into sterno-costal position it was able to maintain it for a while. Subsequently it fell back into the lateral position; struggling of the legs was then noted. The ox was again put into the recumbent position, and now was able to maintain it. It was subsequently noted to be eating. In the afternoon it was again stretched out on the ground, breathing normally and lying quietly.

26.4.19: The ox was stretched out on its left side. It was lying quietly.

27.4.19: The ox was lying in the same position. In the right nostril was a collection of froth. The animal was then propped up. It was unable to carry the head, which was kept stretched out, resting on the mandible. This position was kept up all morning. In the afternoon froth was found in both nostrils.

28.4.19: The ox was stretched out on the left side. When approached it pricked the ear and turned the eyes in the direction from which it was approached. It was lying quietly. The respiration was slightly accelerated. The treatment with camphor was repeated, and the ox was again propped up in the sterno-costal position.

29.4.19: The ox was found in half sterno-costal position, the head stretched out and resting on the mandible. There was a swelling on the mandible. Froth was present in the nostrils.

30.4.19: The ox was in the same position where left on the previous night. It had not been eating or drinking for some time.

1.5.19: The animal was frothing at the nostrils. In the afternoon the respiration was somewhat laboured, viz., abdominal and inspiratory movements of the nostril noticeable. The ears were drooping, the eyes were staring. Only rarely the eyelids were moved and the tail was lashed slightly on one or two occasions. Signs of some slight struggling were noted, and this had pushed the bedding out of reach.

2.5.19: The ox was lying in the same position as on the previous day and breathing was of the same type. The flanks were deeply sunken. The camphor treatment was repeated.

3.5.19: The ox died during the night. The temperature of this ox was recorded since 22.4.19. During the whole period the evening exacerbation never passed 102° F, and the morning remission never went below 100° F. On the last day, 2.5.19, both evening and morning records were subnormal.

Post-mortem Report of Ox 2641. A full mouth ox in good condition. Rigor mortis was present in the hind legs and absent in the front legs. The integument was intact. The abdomen was relaxed. Mouth and anus were closed. The visible mucous membranes showed no changes. The blood was coagulated and stained well. In the subcutaneous tissue a fair amount of fat was present, and in some places were jelly-like infiltrations. The flesh was somewhat dark in colour. The lymph nodes of the head showed no changes in size or colour. The peritoneal cavity showed no foreign contents. There was no change in the situs viscerum. The serosa was smooth and glistening. The diaphragm was convex forward. No foreign contents were found in the pleural cavity. The costal pleura was smooth and glistening with the exception of a few places in which it was thickened. The tongue and pharynx showed no changes. The cervical portion of the oesophagus was empty. In the thoracic portion a bolus was found. The parotid glands were somewhat hard. The submaxillary was of soft consistence. The pleura was smooth and glistening. The lungs were found partly inflated. The consistence of the tissue was elastic. On section it was found to be slightly moist. Some froth was present in the bronchi and in the trachea. The mucosa of the bifurcation and that of the eparterial bronchus showed ecchymoses. Traces of ingesta were present. The lymph nodes of the thoracic cavity showed no changes. The pericardium contained a small quantity of brownish liquid. The parietal serosa was smooth and glistening. The epicardium showed ecchymoses in both ventricles. A fair amount of fat was present in endocardiums, valves, and the intima of the vessels showed no changes. The the grooves. Both ventricles were distended with well coagulated blood. Their myocardium was somewhat opaque. The periportal lymph nodes showed no

changes. The liver was somewhat enlarged and very rich in blood. The capsule was smooth, glistening and transparent. The parenchyma on section appeared red-brown and smooth. The consistence was somewhat soft. The gall-bladder was distended with thick black bile. Some pressure was required to force it out of the ductus choledochus. The mucosa of the bladder was almost black. A fair amount of bile was present in the bile ducts. The pancreas showed no changes. The spleen measured 46 by 16 cm. The capsule was somewhat shrivelled; it contained some fat. The parenchyma was fairly dry. The trabeculae were distinct, the follicles not. The cortex of the suprarenal glands showed yellow striations. The adipose capsule of the kidney was rich in fat; the fibrosa stripped easily. Both organs were dark-red in colour, the left one darker than the right. The intermediary zone was almost black. The consistence was somewhat soft. The rumen was filled with somewhat coarse and dry ingesta. In the dorsal cranial portion some bones and pieces of wire were found. The reticulum contained no ingesta however. Some bones and wire were present. The contents of the omasum were dry; those of the abomasum were liquid. The mucous membrane of the latter was reddened, and blackish spots were present in the folds. The small intestines were practically congested throughout the whole length, and in some places red cross markings were seen; other places were diffusely reddish discoloured. The mucosa of the caecum and a section of the colon were also reddened. In the mesentery a fair amount of fat was present. The mesenteric lymph nodes appeared to be unusually small. The bladder contained a small quantity of urine. The brain showed no changes.

Pathological Anatomical Diagnosis: Gastro-enteritis catarrhalis. Foreign bodies (bones) in rumen and reticulum. Impaction of omasum. Ecchymoses in epicardium. Hyperaemia of liver and kidneys.

Diagnosis of Disease: Lamsiekte.

Epicrisis: The case represented a chronic case of lamsiekte lasting for twelve days and affecting from the beginning the locomotor system. The autopsy showed the presence of a fairly acute catarrhal gastro-enteritis. Bones were found both in the rumen and reticulum. The animal had on two occasions been submitted to the bone-eating test, and was found to be a bone-eater. The last test occurred seventeen days previous to onset of disease. These bones might have been the cause of the disease, since two more oxen (*vide supra*) which had been tested with the same lot of bones also contracted the disease. Since, however, the toxicity had not been proved, the case might be considered to be of natural origin, and then probably caused by bones that were picked up in the veld since the last test.

6. **RED HEIFER 115.**—Arrived at Armoedsvlakte on 30.3.19, and was running on the veld since 7.4.19.

Anamnesis: On 22.4.19 the heifer was submitted to the craving test with sterilized rotten bones, and found to be a bone-eater.

3.5.19: The heifer appeared to be ill, and was not returned to the veld.

4.5.19: This morning the heifer was not able to rise. Salivation was present. The diagnosis lamsiekte was made and the animal submitted to treatment with potassium iodide.

5.5.19: The heifer was found lying stretched out this morning, and died soon afterwards. The examination of blood-smears gave negative results.

Post-mortem Report of Heifer 115: A two-year-old heifer in somewhat poor condition. The autopsy was made about six hours after death. Rigor mortis was present. The integument was intact. Mouth and anus were closed. The visible mucous membranes showed no changes. The blood was coagulated; it stained well. The subcutaneous tissue was poor in fat. The superficial lymph nodes of the trunk showed no changes. The tongue, pharynx, and oesophagus showed no alterations. The peritoneal cavity was free of foreign contents; there was no change in the situs viscerum; the serosa was smooth and glistening, and the diaphragm was convex forward. The pleural cavity showed no foreign contents, the costal pleura was smooth and glistening. The visceral pleura was smooth, glistening, and transparent. The lungs were in expiratory stage; the parenchyma was somewhat moist but elastic. The mucosa of the trachea and bronchi showed no changes. In the pericardium was a small quantity of clear liquid; the parietal serosa was smooth and glistening. The right ventricle and atrium were somewhat distended with coagulated blood; a smaller quantity was present in the left heart. The epicardium, endocardium, and myocardium showed no alterations. The periportal lymph nodes were slightly enlarged and somewhat moist. The liver showed no change in size or shape. The capsule was smooth, glistening,

and transparent. The parenchyma on section appeared red-brown and granular; the consistence was firm. The gall-bladder was half distended with green liquid bile; the ductus choledochus was open. The pancreas showed no alterations. The spleen measured 37 by 12 cm. The capsule was somewhat shrivelled; the parenchyma was fairly dry, the trabeculae were distinct. The cortex of the suprarenal glands was yellow streaked. A small amount of fat was present in the adipose kidney capsule; the fibrosa stripped easily. The parenchyma was dark-red in colour. All three zones were distinct; the cortex was streaked; the consistence was somewhat firm. The rumen contained normal ingesta. The contents of the reticulum were semi-liquid. Pieces of bones were present, also some lead packing. The contents of the omasum were fairly dry, those of the abomasum were liquid; the mucosa showed no changes. The mucosa of the small intestines was reddened throughout its whole length; in parts faintly marked red cross strips were present. The mucosa of the caecum was faintly reddened, also the last portion of the colon. The faeces in the rectum were dry, resembling those of a horse. The mesentery contained a small quantity of fat. The lymph nodes showed no change in size and aspect. The urinary bladder contained clear urine; the mucosa showed no changes. The brain showed no alterations.

Pathological Anatomical Diagnosis: Enteritis catarrhalis. Foreign bodies in the reticulum. Partial impaction of omasum. General atrophy of adipose tissue.

Diagnosis of Disease: Lamsiekte.

Epicrisis: The case must be considered to be one of acute lamsiekte, lasting for about two days; the locomotor system was principally involved with a slight paresis of the pharynx (salivation). The animal died, and the autopsy showed the presence of an enteritis catarrhalis and pieces of bones in the reticulum. The heifer on testing with sterilized bones had proved to be a bone-eater. This test had been carried out eleven days before the onset of the disease, and it was thus possible that the bones found in the reticulum date back to that date. The bones, however, were no longer toxic, and thus could not be connected with the disease in this animal. The only feasible explanation was that the heifer found the bones in the veld, "C" camp abutting on the carcass paddock, from where bones would find their way into the veld. It is of interest to note that the heifer developed the disease twenty-six days after being turned out in the veld.

7. BLACK HEIFER 3870.—Arrived at Armoedsvlakte on 25.11.16. Since 7.4.19 she acted as a control, and was grazing in B camp. The herd to which she belonged was not under observation for bone-eating.

2.5.19: The heifer did not return with the herd this morning. She was only found in the afternoon. The stockman reported that she rose as soon as she was approached, but lay down immediately afterwards, and subsequently would no longer rise. She was brought in with a scotch cart and placed in the shed.

3.5.19: This morning the heifer was in sterno-costal position. She had a dry nose and staring coat. In the afternoon she was found lying stretched out on the ground. The faeces were soft, well formed, and covered with mucus. The diagnosis lamsiekte was made. The animal was submitted to the treatment with potassium iodide.

4.5.19: The heifer was found in sterno-costal position in the morning. Later she was lying flat on the ground. The treatment was repeated.

5.5.19: The heifer was found stretched out on the left side. A faint grunting noise was heard.

6.5.19: The animal was still lying stretched out on the left side.

7.5.19: The heifer was found in the same position. She was quiet. Breathing was shallow and somewhat slow. The surface of the body was warm. The eyes were staring, the ears drooping.

8.5.19: There was much froth in the nostrils of the heifer. She was killed. Temperature records were kept from the evening of the 2nd May. The evening exacerbations never exceeded 102° F. The morning records on two occasions were near 98° F. On the morning the animal was killed the temperature was 100.2° F.

Post-mortem Report of Heifer 3870: A full-mouthed heifer in rather poor condition. The autopsy was made about four hours after death. Rigor mortis was present. The integument showed some abrasions of the skin at the joints. The abdomen was relaxed. Mouth and anus were closed. The visible mucous membranes showed no changes. The blood was not completely coagulated and stained well. The flesh had a somewhat dark colour. Fat was absent in the subcutaneous tissue. Jelly-like infiltrations were present. The superficial

lymph nodes appeared rather small, and some were conspicuously black in places. The peritoneal cavity showed no foreign contents. The serosa was smooth and glistening. The diaphragm was convex forward. No foreign contents were present in the pleural cavity. The costal pleura was smooth and glistening. The parotids appeared to be somewhat hard on cutting. No changes were noted in the submaxillary glands. Tongue, pharynx, and oesophagus showed no changes. Neither were there any in the larynx. Some froth was present in the trachea and the bronchi. The visceral pleura was smooth, glistening and transparent. There was some emphysema present in the interstices. The lung tissue was elastic and somewhat moist. The mediastinal and bronchial lymph nodes showed no changes. In the pericardium was a small quantity of clear liquid. The right ventricle was distended with semi-coagulated blood, the left ventricle also contained some. The endocardium of the septum of the left ventricle and of the cranial musculus papillaris showed some ecchymoses. Haemorrhagic patches and ecchymoses were also present in the epicardium of both ventricles. The myocardium was pale and slightly opaque. The periportal lymph nodes were of usual size and appearance. The liver showed no change in size and shape. The capsule was smooth, glistening, and transparent. The parenchyma was red-brown. On section it appeared slightly granular. The consistence was firm. The gall-bladder contained dark yellow-green liquid. The ductus choledochus was open. The spleen measured 45 by 13 cm. The capsule was somewhat tense; the pulp dark and soft; the trabeculae were indistinct; the follicles were fairly distinct. The suprarenal glands were somewhat dark in colour; the cortex was yellow. The adipose capsule contained some fat; the fibrosa stripped easily. The surface of the kidney was smooth; the colour was dark-red; on section all zones were distinct, the intermediary one was rather dark; the cortex had a striated appearance; the consistence was firm. The rumen and reticulum contained moist ingesta. No foreign bodies were found. The contents of the omasum were slightly dry. The abomasum contained a blackish liquid. The mucosa showed no changes. The small intestines in some places showed faint red cross stripes, some were faintly reddened and others slightly black. The mucosa of the caecum was black pigmented. The colon and rectum showed no changes. The mesentery contained some fat. The lymph nodes showed no change in size. The urinary bladder contained clear urine. The mucous membranes showed no alterations. A yellow body was found in the left ovary. The brain showed no changes.

Pathological Anatomical Diagnosis: Enteritis catarrhalis (slight). Ecchymoses in endocardium and epicardium. Tumor splenis.

Diagnosis of Disease: Lamsiekte.

Epicrisis: The case represented a sub-acute form of lamsiekte, affecting the locomotor system, and lasting six days before the animal was killed. The autopsy showed the presence of an enteritis catarrhalis and the absence of any bones or other foreign contents in the stomachs. No doubt was entertained about the diagnosis, and although the absence of foreign bodies was considered somewhat remarkable, yet the absence of bones need not be regarded as being a contradiction to the diagnosis of lamsiekte, as had been explained in a previous case. This animal had no history of bone-eating. It belonged to a lot which had not yet been submitted to regular observations.

8. RED COW 2598.—At Armoedsvlakte since 8.3.17. She was running with the controls since 7.4.19.

Anamnesis: In test experiment with sterilized bones on 9.5.19 the cow was found to be a bone-eater.

15.5.19: This morning the cow was noted to be stiff, and was turned into the hospital camp, where she lay down soon afterwards. Blood-smears were negative, and the diagnosis lamsiekte was made.

16.5.19: This morning the cow rose with some difficulty, but soon afterwards went down again. In the afternoon the cow was unable to rise.

17.5.19: The cow was found lying in lateral position, and when placed into sterno-costal position she was unable to maintain it. The animal received an injection of turpentine.

18.5.19: The cow was lying in the same place where she was left last night and was stretched out flat on the right side. She was breathing with some difficulty. The dyspnoea was both of inspiratory and expiratory type. The former was indicated by distinct movements of the wings of the nostrils, the latter by marked abdominal movements. There was some froth in the nostrils and the mouth, which was kept open, the tongue slightly protruding. She was put back into sterno-costal position, but was unable to maintain herself in this position. The cow died during the morning.

Post-mortem Report of Cow 2598: A full-mouth red and white cow in good condition. The autopsy was made soon after death. Rigor mortis was present. The integument was intact. Mouth and anus were closed. The visible mucous membranes showed no alterations. There was a smell of turpentine about the animal. The blood at the beginning of the autopsy was not coagulated; it stained well. The flesh was somewhat dark; in some parts it had a dry and opaque aspect. At the seat of the injection was an oedematous infiltration of the subcutaneous tissue. The external superficial lymph nodes of the trunk appeared rather small, also those of the head; some, e.g. the left ischiadic one was conspicuously small. They were white on section. The peritoneal cavity was free of foreign contents. The dorso-cranial caecal portion of the rumen was attached to the diaphragm by fibrous tissue; also the cranial aspect of the reticulum; the parietal serosa was smooth and glistening. The diaphragm was convex forward. The pleural cavity showed no foreign contents; the costal pleura was smooth and glistening. The mediastinal and bronchial lymph nodes were of usual size and aspect. The teeth were all complete. The tongue, pharynx, and oesophagus showed no alterations. Both parotid and submaxillary glands showed no change in consistence or colour. The larynx showed no changes; in the trachea some traces of ingesta were found; the cervical portion contained a small amount of froth, and the thoracic a considerable amount. The bronchi were filled with froth, and in some branches traces of ingesta were found. The mucosa showed no changes. The lungs were partly in the expiratory state; the visceral pleura was smooth, glistening, and transparent. The parenchyma was fairly rich in blood, elastic, and slightly turgescens; on section it was somewhat moist. The intima of the pulmonary vessels showed no changes. The pericardium contained a small quantity of clear fluid. The parietal serosa was smooth and glistening. The right ventricle and atrium were fully distended with a well-formed clot; the left heart was less distended. The epicardium of the right wall showed some ecchymoses. At the root of the aorta, facing the sinus transversus pericardii, some ecchymoses were present. The endocardium showed no changes. The myocardium was slightly opaque. The periportal lymph nodes showed no changes. The liver was rather large, the capsule smooth and glistening, the parenchyma was dark red, rich in blood, and the cut surface was smooth; the consistence was somewhat firm. The gall-bladder contained a small quantity of bile, the mucosa of the bladder was injected and ecchymosed, the ductus hepaticus was injected in its end portion; the ductus choledochus was open. The spleen dimensions were 42 by 12 c.m. The parenchyma was somewhat dark, the follicles were small, and the trabeculae just visible; the consistence was fairly soft. The suprarenal glands were dark brown, and the cortex showed yellow streaks. The adipose capsule of the kidney was rich in fat; the fibrosa stripped easily. The right kidney was larger than the left one and contained much blood; both were dark in colour; the cortex was almost as dark as the intermediary zone; the consistence was fairly firm. The rumen contained normal ingesta; the reticulum contained watery ingesta, and a piece of a cattle tooth was also found. The omasum was much distended, and the contents were dry and hard. The abomasum contained liquid contents. The mucosa of the fundus was reddened, and on some of the folds old hæmorrhages were seen; the pylorus showed no changes. The mucosa of the duodenum was deeply reddened; it was swollen and covered with mucus. The jejunum in parts showed red cross-stripes, and long stretches were diffusely reddened and in some parts distinctly hæmorrhagic. The mucosa of the caecum and of the caudal portion of the colon was red and black. The mesentery showed a fair amount of fat; the mesenteric lymph nodes were small and somewhat dry on section. The urinary bladder was empty; the mucosa showed no changes. The left cornu uteri was pregnant with a small embryo; in the left ovary was a corpus luteum. The brain showed no alterations.

Pathological Anatomical Diagnosis: Gastro-enteritis catarrhalis. Cholecystitis catarrhalis. Peritonitis fibrosa adhaesiva. Foreign body in reticulum. Impaction of omasum. Hyperaemia of liver and kidneys. Ecchymoses in endocardium. Slight tumor of the spleen.

Diagnosis of Disease: Lamsiekte.

Epicrisis: The case represented one of acute lamsiekte, lasting for three days, and affecting primarily the locomotor system and subsequently the tongue. At the autopsy the lesions of a catarrhal gastro-enteritis were present, and the remains of a cattle tooth was found in the reticulum. This tooth could not have been one of the cow herself: all her teeth were found

to be complete. The cow had the history of a bone-eater in a previous test. The case is considered to be one naturally contracted. It is of interest to note that it occurred in the middle of May.

9. BROWN HEIFER 122: Arrived at Armoedsvlakte on 30.3.19 and was running in the veld since 7.4.19.

Anamnesis: On the 4.4.19 the heifer was noted to be chewing bones in the veld. She was tested for craving with sterilized rotten bones on the 22.4.19, 9.5.19, and 15.5.19, and found to be a bone-eater.

18.5.19: In the morning the heifer was noted to be ill. She was not feeding, but lay down. The hocks were soiled with faeces; the tail was somewhat extended from the body. She was subsequently put into the shed, where she was noted to eat lucerne-hay. The muzzle and the nostrils were somewhat dry. Examination of a blood-smear gave negative results.

19.5.19: The heifer was in sterno-costal position. When forced, she would not rise. Subsequently, when the thermometer was placed into the anus, she suddenly rose with a jerk. Immediately afterwards she again went down, almost dropping into the left sterno-costal position. She made a second attempt to rise, but failed, and dropped this time into the right sterno-costal position. The faeces were soft and of usual colour. Both nose and muzzle were dry. In the afternoon she was noted to feed a little, but she refused to drink. The temperature in the morning was 99.8° F. The diagnosis lamsiekte was made. The heifer received an injection of turpentine.

20.5.19: The heifer had died during the night.

Post-mortem Report of Heifer 122: A two-year-old heifer in good condition. Rigor mortis was complete in the hindquarters and not complete in the forequarters. The abdomen was slightly distended. The integument was intact. Mouth and anus were closed. The visible mucous membranes showed no abnormalities. In the mouth cavity was a bolus of chewed food. The blood was coagulated. The flesh was somewhat dark in colour. The subcutaneous tissue contained a fair amount of fat. At the seat of the turpentine injection in the neck a gelatinous infiltration in the subcutaneous tissue was present. The smell of turpentine was still noticeable. Of the superficial lymph nodes, the two superficial cervicals were much enlarged, and the left one contained a necrotic focus in size about that of a bean. The lymph nodes of the head were somewhat enlarged. The peritoneal cavity contained a small quantity of clear liquid; the peritoneum was smooth and glistening. The intestines were somewhat distended with gas. The convexity of the diaphragm was forwards. A small quantity of clear liquid was found in the pleural cavity; the costal pleura was smooth and glistening, with the exception of a small area to which the right apical lobe had been attached by fibrous adhesions; the lobe could easily be detached, however. The tongue and pharynx showed no changes. In the mucosa of the oral portion of the oesophagus a few tuft-like papillae and a number of ecchymoses were noticed. The parotid in parts was somewhat hard on cutting. The larynx showed no changes. The nasal mucous membranes were bluish and injected. The thoracic trachea was filled with froth; traces of ingesta were present; the mucosa showed no changes. The bronchi contained froth and ingesta; the mucosa was injected and reddened and ecchymoses were present. The visceral pleura was smooth and glistening, except over the right apex, where it was fibrous. The parenchyma of the lung was fairly rich in blood; it was elastic and slightly turgescient. The section was moist. The pericardium contained about 20 c.c. of clear liquid. The parietal serosa was smooth and glistening. The right ventricle was distended with well coagulated blood; the left ventricle was less so. The endocardium of the right ventricle was somewhat diffusely wine-red stained. The intima of the vessels showed no changes. The myocardium was somewhat opaque and discoloured. Under the epicardium of the base and in the longitudinal grooves a fair amount of fat was present. The periportal lymph nodes were of usual size, aspect, and consistence. The liver showed no alteration in size or shape. The capsule was smooth, glistening, and transparent. The parenchyma was light yellow-brown and yellowish-mottled. The consistence was rather soft. The gall-bladder was half filled with green yellow bile; the mucosa of the gall-bladder and bile-ducts was yellow-stained. The ductus choledochus was open. The pancreas was somewhat discoloured. The spleen dimensions were 37 by 12 cm. It was somewhat thickened. Some ecchymoses were present in the capsule of the parietal surface. The parenchyma was somewhat soft; follicles and trabeculae were fairly distinct. The suprarenal glands were brown with yellow streaks in the cortex. The adipose capsule was rich in fat;

the fibrosa stripped easily. The left kidney was light brown in colour, the right one was larger and darker and rich in blood; the consistence was firm. The rumen contained normal ingesta. The reticulum contained soft ingesta. Small pieces of bone and grains of sand were present. The omasum contained fairly moist ingesta, whilst the abomasum contained liquid and semi-liquid ingesta. The mucosa of the fundus was brownish-discoloured. The duodenum contained a considerable quantity of viscous mucus. The mucosa of the small intestines was brownish-discoloured; faint red patches and cross stripes were present. The mucosa of the caecum and of the first portion of the colon was also brownish-discoloured; that of the rectum was somewhat reddened. The faeces were soft. The mesentery was rich in fat; some of the mesenteric lymph nodes contained gas. A small quantity of normal urine was present; the mucosa showed no changes. The parenchyma of the superficial lymph nodes was conspicuously reddened. The brain showed no changes.

Pathological Anatomical Diagnosis: Gastro-enteritis catarrhalis. Foreign bodies in the reticulum. Pleuritis fibrosa adhaesiva. Oedema pulmonum. Bronchitis catarrhalis traumatica. Slight tumor splenis. Hyperaemia of the superficial cervical lymph nodes. Necrosis of a lymph node.

Diagnosis of Disease: Lamsiekte.

Epicrisis: The case represented one of acute lamsiekte, lasting two days, and affecting the locomotor system. On post-mortem examination, the presence of a catarrhal gastro-enteritis was diagnosed. Bones were found in the reticulum. The animal was a bone-eater and was picked out as such on the veld and confirmed on three different occasions by testing with sterilized bones. It is possible that the bones found in the reticulum dated back to the last test, which was carried out only three days before the animal took ill. The animal was a recent arrival on the farm and took ill about five weeks after it had been turned out on the veld.

SECTION 3.—EXPERIMENTS OUTSIDE THE RECOGNIZED LAMSIEKTE AREA.

PLAN OF CONTENTS.

	Page
<i>Series A.</i> —Drenching with material originating at Onderstepoort	1052
<i>Series B.</i> —Drenching with material originating from Armoedsvlakte.....	1057
<i>Series C.</i> —Drenching with material obtained at Onderstepoort, but originating from Armoedsvlakte.....	1060
<i>Series D.</i> —Drenching with material obtained at Onderstepoort as the result of cultivating anarobic organisms contained in toxic bones originating from Armoedsvlakte.....	1962
<i>Series E.</i> —Drenching with material obtained from the carcasses of animals in Natal	
<i>Appendix.</i> —Details of experiments referred to in the various series and post-mortem report on some of the fatal cases.....	1066 1069

The results of our earlier experiments at Armoedsvlakte in the lamsiekte area having clearly shown that decomposing animal matter contained a highly potent toxin which could be held responsible for the causation of lamsiekte, it was thought advisable to repeat the experiments on an area where this disease was unknown.

It was hoped that by a carefully planned series of experiments many obscure points might be elucidated, among these being—

- (1) Whether toxin production in decomposing animal matter was confined to lamsiekte areas or occurred in any part of the country;