

Notes on meat and food inspection for sanitary inspectors / by John T. Cowderoy.

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NOTES
OF
MEAT AND FOOD
INSPECTION
FOR
SANITARY INSPECTORS,
BY
JOHN T. COWDEROY,
CHIEF SANITARY INSPECTOR,
BOROUGH
OF
KIDDERMINSTER.

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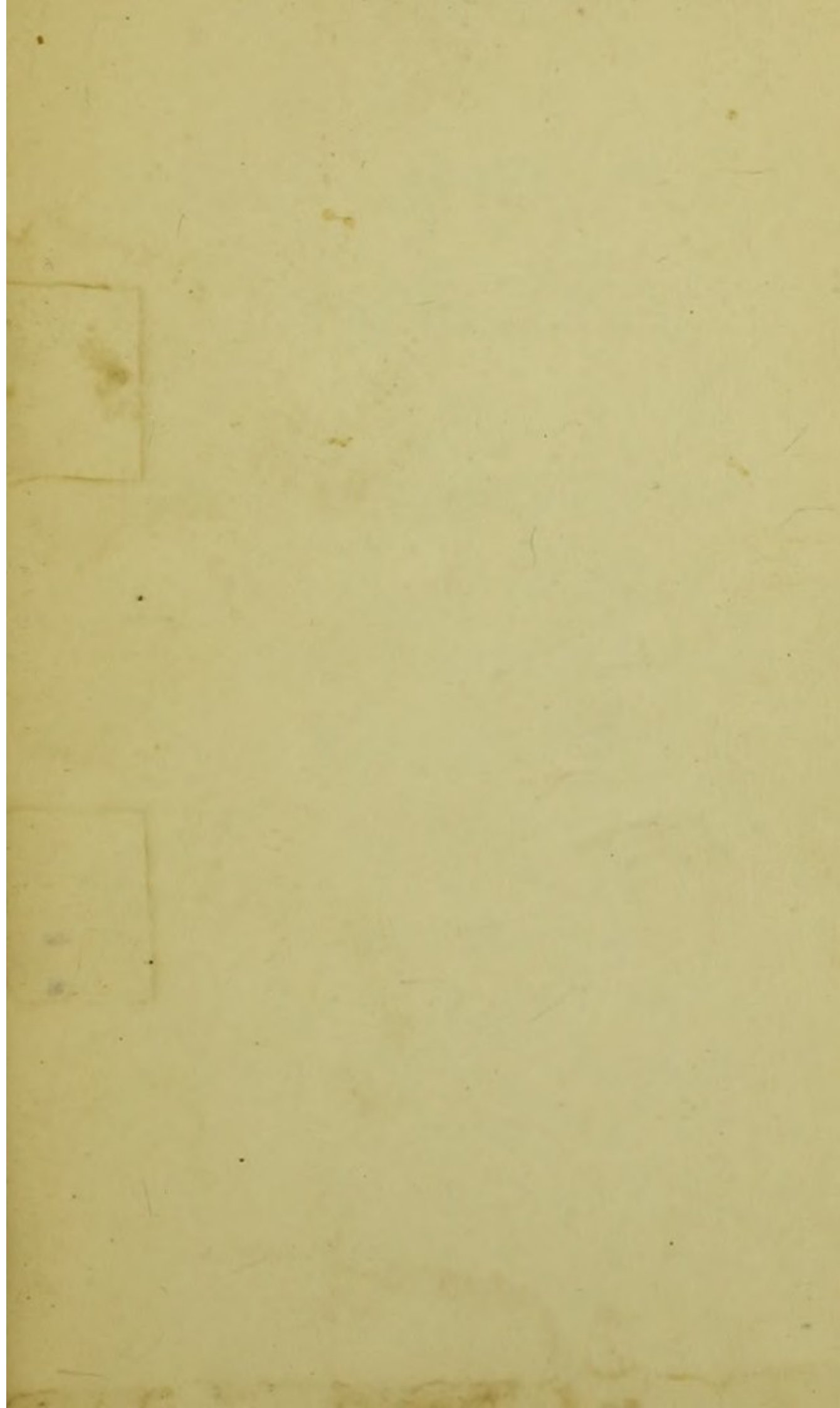
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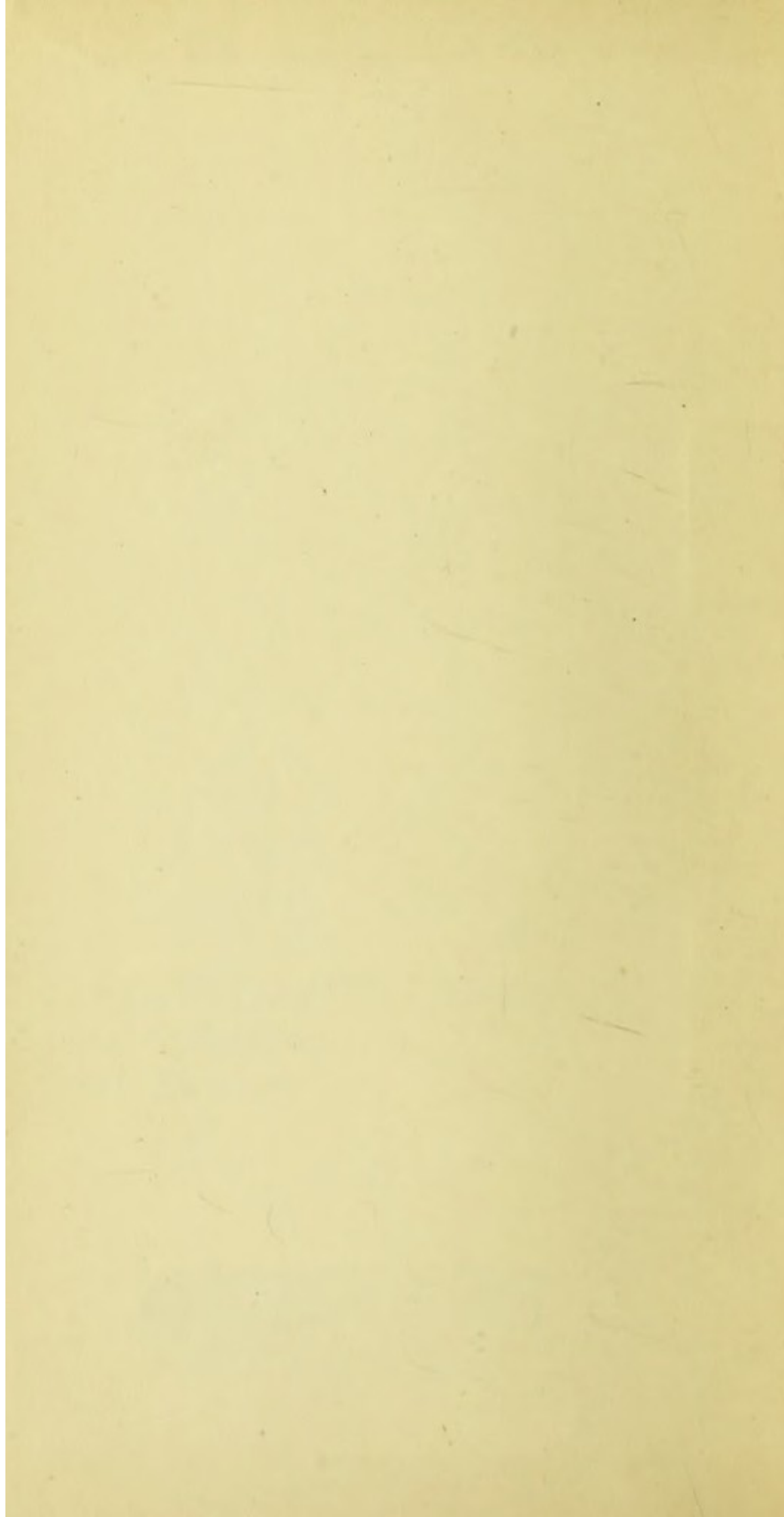
Cookery Bateman

A Cow



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❖ NOTES ❖
ON
MEAT AND FOOD
INSPECTION


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Notes on Meat and Food Inspection ... for ... Sanitary Inspectors.

This small Remembrancer is intended for Inspectors in the smaller provincial towns, whose practice in meat inspection covers a smaller ground than their colleagues, who devote their whole time to meat and foods inspection in larger communities.

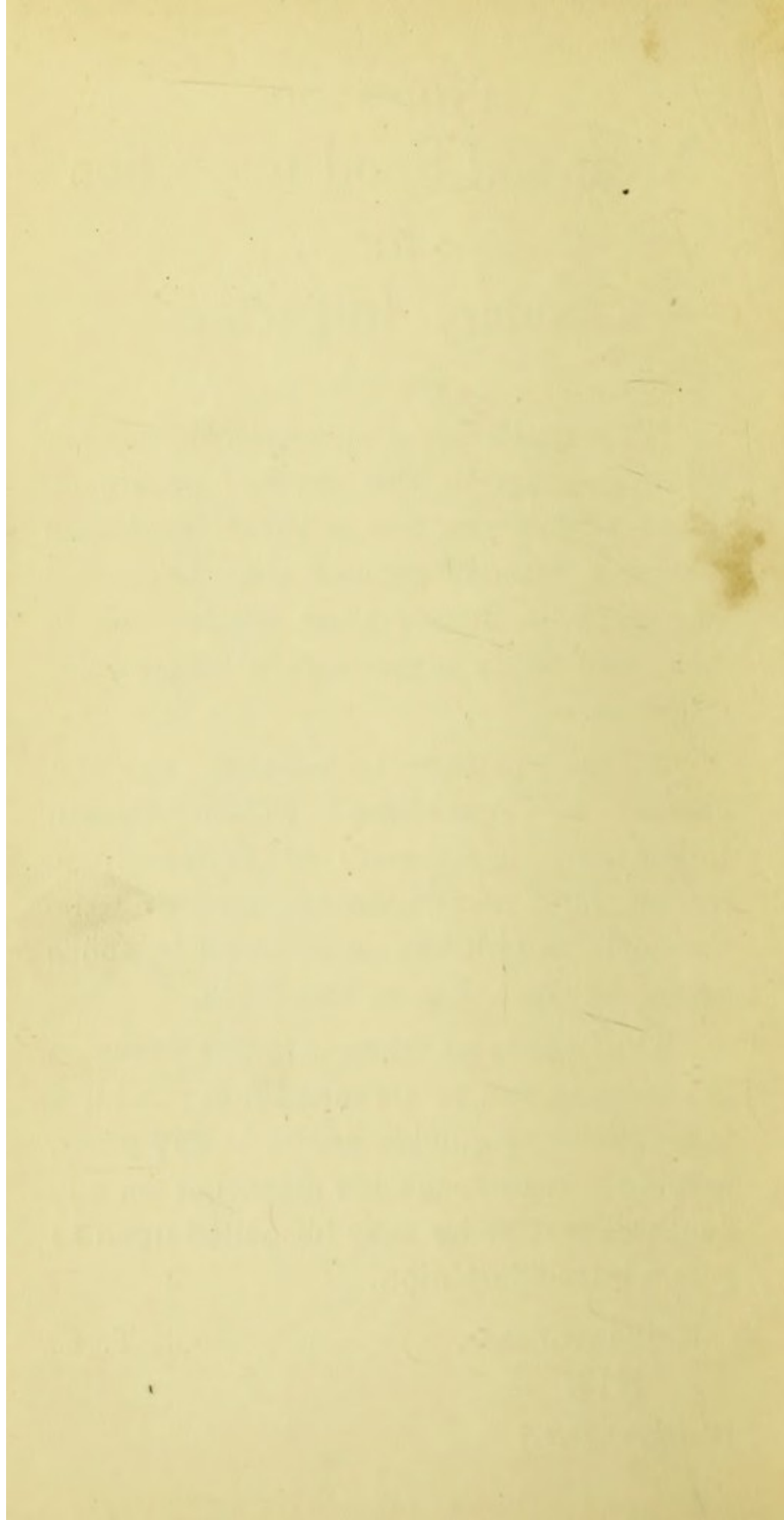
I am much indebted to Mr. James F. Brailsford, Public Health Laboratory, University of Birmingham, for his kind assistance in correcting the "proofs," which has in no small measure added to the value of the Book.

The book is an index to larger works on the subject, and so arranged that the busy Inspector may quickly arrive at any point, helping him to focus his attention on any doubtful matter he may be called upon to give a hurried opinion.

Kidderminster,
1912.

J. T. C.

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THE COW.

THE CARCASE.

Tuberculosis—

The chief place in the carcase of the animal to find tuberculosis is on the pleura (the skin of the ribs which lines the walls of the chest). Another site is the udder. Vertebrae often show caseous areas. Large swellings often noticed in the ribs. Lumbar and pelvic glands often show much enlargement.

Anthrax—

The flesh is rather paler than normal, except where intramuscular hæmorrhages have occurred. These latter sites are generally blackish-red in colour. Large superficial bruises are often seen. Lymphatic glands, hæmorrhagic, petechiæ on mucous membrane.

Black Quarter or Black Leg—

This disease is somewhat similar to anthrax. It affects one of the fore or hind quarters, the colour being dark, and the quarters are more or less swollen, and crackle on pressure, owing to the muscles being distended by gases generated by the black quarter bacillus; when cut a rancid odour is emitted.

Hydræmia—

The carcase does not set, the meat is watery, flabby and soft, and of a pale red colour, and moisture exudes from its whole surface.

Mieschers Sacs (Sarcosporidia)—

These are cigar-shaped bodies which vary much in size, sometimes being visible to the naked eye, and sometimes requiring the microscope. They lie in the long axis of the muscle.

THE COW (continued).

Cattle Pest or Rinderpest—

The flesh of animals affected by this disease in the later stages may be very dark in colour, has a disagreeable smell, and crackles on pressure owing to the presence of air.

Pyæmia and Osteomyelitis—

Generalised abscess formation. In the latter disease confined to the bones the marrow being replaced by pus; abscesses often seen under the periosteum of the bones.

Osteomalacia—

In this disease the bones are very friable, so that often attention is called to the carcase by the presence of broken limbs. The marrow is dark in colour.

THE HEAD.

Actinomycosis—

The most frequent spot for its development is on the dorsal surface, between the body and tip of the tongue. Besides this form just described, actinomycosis of the tongue occurs in the shape of numerous marbled nodules scattered throughout its substance, which may readily be detected by the fingers in the freshly slaughtered animal. There is the diffuse form of the disease commonly known as "wooden tongue," in which the whole organ or a large portion of it becomes extremely hard and dense, from a progressive proliferation of connective tissue at the expense of the muscular tissue. Besides the tongue the jaw may be affected ("lumpy jaw"), in this case the jaw-bone is often considerably enlarged and carious, the latter condition may exist without the tongue being affected.

THE COW (continued).

Foot and Mouth Disease—

The appearances produced are, in the first place, those of clear vesicles which form on the nasal septum on the border of the upper jaw, at the tip and on the lateral surfaces, especially of the tongue, as well as on the mucous membranes of the mouth.

Tuberculosis—

The pharyngeals and submaxillary lymphatic glands are the chief sites of this disease in the head. The glands first become slightly swollen and œdematous, then later small pin-point yellow specks may be seen (beginning of caseation) which often develop into large nodules as big as a pigeon's egg.

Other Diseases—

The tongue may show of cysticercus bovis, also sarcosporidia, malignant, and benign growths are not uncommon.

THE LUNGS.

Broncho-Pneumonia—

It is known by the many small areas in a state of inflammation, these being scattered throughout the organ irregularly.

Lobar Pneumonia—

It is caused by the infection of one or other definite microbes, which produce a condition corresponding in all its main features to that of other specific infective fevers. The disease is divided into four stages:—(1) congestion; (2) red hepatisation; (3) grey hepatisation; (4) resolution. In the first stage the organ is red on account of the increased quantity of blood

THE COW (continued).

which is present. In the second stage the lung becomes coagulated, and the portion of the lung affected is practically solid. A portion of the lung at this stage, if placed in water, will sink. In the next stage the lung turns grey, and the solid portion degenerates into semi-liquid. Later, if the animal survives, the lung returns to its normal condition.

Contagious Pleuro-Pneumonia—

The lobules of the lungs exhibit varying colours according to the stage of the inflammation. Thus a cross section through a portion is termed the "marbled" appearance, the streaks being the dilated septa. These are seen to be either red, if congested; darker when hepatised; or grey when degenerated. In cases which are of old standing there are patches of dead tissue (necrosis) around which there may be a fibrous capsule.

Lobar Contagious Pneumonia and Septic Pneumonia—

Contagious pneumonia may be distinguished from ordinary pneumonia by the fact that in the latter the alterations in the lungs are all at the same stage, and in no other form of pulmonary inflammation is the distension of the interlobular septa so marked as in contagious pneumonia.

Pyæmia—

In this disease multiple abscesses will be found scattered throughout the whole of the lung tissue.

Fungoid Conditions—

Fungi or moulds in cattle, the lesions taking the form of hepatised areas with a

THE COW (continued).

somewhat marbled appearance. Inside the nodule may be found, by the aid of the microscope, the mycelia and spores of the fungi.

Tumours of Lung—

Occasionally tumours occur in the lungs, these usually being either adenoma, chondroma, or sarcoma.

Strongylus Micrurus—

A small hair-like worm found in the lungs of cattle.

Tuberculosis of Lung—

The appearance of the lungs when affected by tuberculosis varies according to the stage of the disease. In early cases of infection small areas, lighter than normal lung, and quite consolidated, may be seen. Later in these areas, small pin-point yellow specks (beginning of caseation) may be seen. These gradually enlarge until in some cases the whole lung becomes caseated or even calcified. In acute milary tuberculosis the whole of the lung tissue is studded with tubercles all about the same size. The media-stinal glands often show evidence of the disease before the lung tissue.

Pyæmia—

This condition is recognised as multiple abscesses, scattered throughout the whole of the lungs.

THE COW (continued).**THE LIVER.****Capillary Angiomatosis—**

A peculiar form of liver disease which is extremely common, particularly on the Continent, but to which attention is seldom directed in Great Britain, is that known as capillary angiomatosis. The areas are mostly of the size of a threepenny piece or a little larger; they are of a purplish colour and scattered irregularly throughout its whole substance.

Tuberculosis of Liver—

There may be merely a slight deposit upon the surface in the shape of coagulated lymph, which is a part of a general abdominal infection spreading by means of lymphatics. There may be nodules of very varied sizes, some of them extremely large, upon the surface of the liver, without any appearance of disease within the substance of the organ itself. The portal glands often show evidence of the disease before the liver tissue.

Distomum Hepaticum—

This, which is the largest, as well as by far the most common of all the flukes, is a leaf-like trematode, the anterior end being conical and the posterior flattened. It possesses a firm, somewhat tough skin, which is covered with spines.

Distomum Lanceolatum—

This species of liver-fluke is much smaller in size than those of *distomum hepaticum*, it measures only about a third of an inch in length.

THE COW (continued).

Hydatid Cysts—

The cysts are due to the cystic stage of echinococcus. The fluid present in them is under pressure, and when the cyst is cut into, spurts out. If this fluid be carefully examined as well as the walls of the cyst, minute white specks will be seen. These are known as brood capsules, each of which contain from one to thirty scolices (the heads of the future tapeworm). Sometimes these cysts become calcified, and are then extremely hard to cut into.

Tumours of the Liver—

The most frequent in cattle are sarcomata and melanotic tumours, as well as the angiomata.

Focal Necrosis—

This gives the appearance of small, rounded, dark-coloured areas, usually of the size of a threepenny piece, or a little larger, scattered irregularly throughout the whole organ.

Infarcts—

Ordinary infarcts are of no great importance from the point of view of the meat inspector. They appear as yellowish patches immediately under the capsule of the liver, most of them being wedge-shaped, with the base of the wedge to the surface.

Bacterial Necrosis—

The necrotic areas are disseminated throughout the organ, and vary in size from that of a sixpence to that of a shilling, being as a rule rounded, firm, sharply

THE COW (continued).

defined, yellow in colour, surrounded by a reddish peripheral zone. The liver tissue between the necrotic areas is occasionally quite normal, but more usually is pale yellowish or greenish yellow in colour, being either fat or stained with bile.

Cirrhosis of Liver—

The liver itself is enlarged. The colour in the earlier stage being somewhat mottled, later on becoming yellowish, pale, and the bile ducts much thickened and hardened. On cutting across the organ with a knife, the firm hard connective tissue is very obvious. The most frequent cause of cirrhosis of the liver is fluke, and specimens may be found in the bile ducts.

Acute Yellow Atrophy—

This acute form of inflammation of the substance of the liver is generally associated with various forms of poisoning. The organ shows a softening and yellow colouration, the cells being fatty and degenerated, together with extreme bile staining and hæmorrhage.

THE SPLEEN.

Tuberculosis—

Similar to description given under liver. It generally occurs in cattle under 4 years of age; the older cattle seem to escape.

Anthrax—

The inspector in a case of anthrax will be at once struck, when the abdomen is opened, by the immense general enlargement of the spleen. When an animal has died from anthrax, the spleen contains a black tarry substance.

THE COW (continued).**Infarcts in Spleen—**

The spleen may also be considerably enlarged as the result of the presence of numerous infarcts produced by emboli, which take their origin on the heart valves in cases of endocarditis. These infarcts show themselves as raised areas on the surface of the organ, at first red in colour, later becoming pale as the process of necrosis sets in.

Rotation of Spleen—

Occasionally the spleen becomes altered in shape as the result of rotation, particularly in swine, in which animal the organ is somewhat more loose than cattle. The result is an anæmia from twisting of the vessels which is, sooner or later, followed by shrinking and necrosis.

Hæmatoma of Spleen—

Every now and then a spleen is encountered which shows upon its surface a circular swelling varying in size from a marble to a cricket ball, dark red in colour, and of a soft consistency. When the swellings are cut they are found to contain blood, being caused by a local rupture of vessels at the spot.

Parasites, Tumours, and Abscesses of Spleen—

Certain parasites occur in the spleen, particularly echinococcus, and occasionally a liver fluke. Of the tumours which attack this organ, sarcomata and carcinomata both occur, generally as secondary growths. Abscesses are found in spleen, in cases of general pyæmia. It is not uncommon to find a spleen in an extremely fibrous or cirrhotic condition, especially in old animals.

THE COW (continued).**THE KIDNEYS.****Infarcts—**

These are quite common in the kidneys, appearing as wedge-shaped masses with the base to the surface, the colour being at first dark and gradually becoming pale or yellowish, ending either in the formation of fibrous tissue or in small abscesses.

Tumours—

Sarcomata and carcinomata both occur in the kidneys, as well as some benign growths. These tumours may attain a large size.

Pyæmia—

Multiple abscesses scattered throughout the kidney tissue.

Tuberculosis—

Tubercle of the kidneys is often miliary; at first the tubercles are of a greyish colour, being scattered throughout the organ. The disease is sometimes restricted to one lobule.

Parasites—

The kidney is not a common seat for the occurrence of parasites. Occasionally hydated cysts are found, and sometimes a cysticercus of one or other of the tape-worms.

Hydronephrosis—

In this disease the kidney becomes cystic with a marbled appearance and much enlarged.

Cattle Plague or Rinderpest—

This is an infectious fever which sometimes affects the kidneys, the kidneys being congested.

THE OX.

An Ox's liver is one continuous mass, with a small lobe or thumb-piece on the under surface. One half is thick, the other is thin and flat; it has a gall-bladder attached.

The Ox's kidneys are divided into numerous lobes, or, in other words, they are made up of a number of simple kidneys aggregated together. The right kidney is attached close up to the spine, and is somewhat oval in shape and thinner at one end. The left kidney is taken from the open side and is called the floating kidney; it is more irregular in shape, and has the appearance of being slightly twisted. They measure about 8 inches long, and weigh about $1\frac{1}{4}$ pounds each.

The spleen of an Ox is about 14 to 18 inches long, flat and thin at the edges, and of dark greyish colour; its approximate weight is 3 pounds.

A Calf's liver is in one mass, with a thumb-piece on the under side; the colour is a pinkish brown; it weighs about 4 pounds.

THE HORSE.

A Horse's liver is divided into three large lobes and a smaller one; it has no gall-bladder and no thumb piece.

The Horse's kidneys are smooth and not lobulated; the right is heart-shaped, the left bean-shaped; they weigh about 1 pound each, and are about four to six inches long.

The spleen of a horse is sickle or hatchet-shaped, and is of a violet hue when fresh; weighs approximately two pounds.

THE SHEEP.

THE CARCASE.

Mange or Scab—

Mange is a parasitic disease affecting the skin, which may occur in all domestic animals. It is produced by several different forms of acari. It may be found all over the body, but is generally most marked on parts where the hair is naturally short; the head, neck, tail, inside of thighs and belly being favourite sites. The hair over the affected parts becomes very scanty, and the skin beneath is covered with scurf and scales. Crusts formed from the superficial epidermis and scabs are frequently present, whilst raw sores may occasionally be found, especially in sheep.

Braxy—

An infectious disease among sheep. It is usually prevalent during the autumn and winter months, the most serious losses being amongst young animals during their first winter. The body of the dead sheep swells rapidly and putrefaction soon follows. If the animal is examined after death the third stomach (omasum) will be found full of hard undigested food; the walls of the fourth stomach (abomasum) show the characteristic alterations in the shape of bluish-red spots or patches.

Anthrax—

After the animal has been skinned, dark hæmorrhagic and gelatinous-looking masses, bearing the appearance of extravasation due to bruising, are noticed over the

THE SHEEP (continued).

loins, buttocks and shoulders. The flesh itself is paler than usual, but dark where intramuscular hæmorrhage has occurred, hæmorrhage being a characteristic feature in anthrax.

Louping ill—

The muscles of the head, neck, and limbs become involved, complete paralysis of the parts resulting. After death the spinal cord and its coverings may be found diseased. Should sheep be attacked, they soon become emaciated, their flesh being in consequence unfit for human food.

Sarcosporidia—

The whole of the musculature is occasionally found to contain sporocysts from the microscopic size up to that of a kidney bean. The material in the larger cysts is of a cheesy consistency.

THE HEAD

Foot and Mouth Disease—

In sheep this disease is not often met with. The appearances produced, in the first place, are those of clear vesicles which form on the nasal septum, on the border of the upper jaw, at the tip and on the lateral surfaces, especially on the tongue, as well as on the mucous membrane of the mouth.

Cœnurus Cerebralis—

This parasitic cyst, is found on the brain of the sheep and chief nerve centres, giving rise to the condition known as "gid." The same cyst also occurs on the spinal cord of sheep. The cyst, which is of rounded

THE SHEEP (continued).

or elliptical form, varies in size from a canary seed to a hen's egg. If opened it will be found to contain fluid, and around the walls 100 to 200 white bodies like small grains of rice; each of the latter contain a head of the future tapeworm. The presence of this parasite sometimes gives rise to marked emaciation.

Sheep Pox—

This disease is not often seen in animals submitted for inspection. The eruption may appear in the mouth, as well as on the skin of the animal.

Actinomycosis—

This disease affects the jaws of the animal. Inside the mouth the disease appears as nodules, wart-like growths or ulcers, and attacks both upper and lower jaws, especially where there are bad teeth. The tumour, when cut, has a fibrous appearance, in which are found the fungus tufts and sometimes yellowish pus. The fungus can only be seen by microscopic examination.

THE LUNGS.

Fungoid Conditions—

Fungi or moulds produce local patches of inflammation in the lungs, the lesions taking the form of hepatised areas with a somewhat marbled appearance. Inside the nodule may be found (with the aid of the microscope) the mycelia and spores of the fungi. The most common mould to act in this way is aspergillus. The disease is limited to the lungs.

THE SHEEP (continued).

Tumours in Lung—

Occasionally tumours occur in the lung, these being either adenoma, chondroma, or sarcoma, necessitating seizure of the organs themselves and examination of other parts of the body for similar growths.

Pseudo-Tuberculosis—

The lesions are those of localised inflammation, followed by a suppuration with nodule formation; a capsule surrounds the nodules. The contents of this suppurating nodule are greenish in colour, varying in consistency, and sometimes drying up into a stratified or lamellar arrangement. There is no calcification as in true tuberculosis. (See *Strongylus Rufescens*.)

Abscess in the Lungs—

In sheep, abscesses are occasionally found as the result of parasite infection. In all cases of abscess in the thorax, the lungs should be seized.

Verminous Pneumonia—

This condition is often brought about by *Strongylus Rufescens*. In the early stages of infection by this parasite small caseous areas of a greenish or brownish colour are found scattered throughout the lungs.

Hydatid Cysts—

In some cases the whole of the lungs become infested, very little normal tissue being left.

Strongylus Filaria—

This is the name of a small worm measuring 4—5 inches in length, which is occasionally found in the lungs of sheep

THE SHEEP (continued).

and oxen. It soon affects the breathing of the animal, and inflammation of the lungs often results therefrom. Lungs containing these parasites should be destroyed.

Sheep-Pox—

In the lung may be found collections of matter. For further evidence other parts of the carcase must be examined.

Broncho-Pneumonia—

In this disease there may be one or very many small areas in a state of inflammation, these being scattered throughout the organ irregularly, and exhibiting at one and the same time all the various stages of the inflammatory process.

Strongylus Rufescens—

Is a parasite sometimes found in the lungs, especially in sheep ; it gives rise to a condition of parasitic pseudo-tuberculosis. A large number of greenish nodules, with a pretty even distribution, cover the cut surface of the affected organs ; if sections be made, the parasite may sometimes be seen coiled up in the centre of the lesion.

THE LIVER.

Liver Fluke—

Flukes are located in the gall or bile ducts, and owing to the irritation produced by their spines, these vessels become much thickened and hardened. Besides this in advanced cases the whole liver may be distorted and hard from the extensive growth of the interlobular fibrous tissue. The whole liver should in such cases be destroyed.

THE SHEEP (continued).

Cysticercus Tenuicollis—

This parasite is occasionally found in cysts (which vary in size from that of a pea to that of a hen's egg) hanging from the liver and omentum.

Hydatid Cyst—

This is the bladder-worm stage of. *Techinococcus*, a small tape-worm of the dog consisting of three or four segments, the terminal one containing the ova. The bladders or cysts of the echinococci vary in size, depending upon their state of development. When fully formed, they vary in size from a marble to a hen's egg. The cyst is full of fluid which is under pressure, and in this fluid and around the walls of the cyst will be seen white minute bodies known as brood capsules. Each of these contains upwards of 30 scolices or heads. Sometimes small daughter cysts will be found floating about in the fluid. The liver is very greatly enlarged and increased in weight.

Abscess of Liver—

Abscesses in this organ may be found as the result of the invasion of the organisms of suppuration in cases of general pyæmia, or as a secondary infection from any suppurative process which is taking place in another organ. Occasionally tuberculous abscesses may be found.

THE SPLEEN.

Anthrax—

The most characteristic feature is the great enlargement of the spleen, which may be two or three times its normal size.

THE SHEEP (continued).

It is dark red in colour, and on section the pulp is very soft and friable, being supposed to resemble black-currant jelly. Sometimes the spleen is found ruptured on opening the abdomen.

Infarcts—

The spleen may also be considerably enlarged as the result of the presence of numerous infarcts produced by emboli. These infarcts are raised areas on the surface of the organ, at first red in colour, later becoming pale as the process of necrosis sets in.

Hæmatoma of Spleen—

Now and then a spleen may be encountered, which shows upon its surface a circular swelling, varying in size from a marble to a cricket ball, dark red in colour, and soft in consistence. If these swellings be incised they are found to contain blood, and are in fact of the nature of hæmatoma.

Sarcomata and Carcinomata—

Both these tumours attack the spleen, generally as secondary growths from another source. Occasionally the sarcomata are numerous in the organ, and sometimes of the melanotic variety.

THE KIDNEYS.

Renal Calculi—

It is not uncommon to find calcareous deposit in the median portion of kidney in sheep.

Infarcts—

They are quite common in these organs, appearing as wedge-shaped masses, with

THE SHEEP (continued).

the base to the surface, the colour being at first dark and gradually becoming pale or yellowish, ending either in the formation of fibrous tissue, or (in case of septic infection) in small abscesses.

Tumours—

Sarcomata and carcinomata both occur in the kidneys, as well as some benign growths. These malignant tumours may attain a large size.

Parasites—

The kidney is not a common seat for the occurrence of parasites, except that known as *eustrongylas gigas*, which has its normal habitat in these organs. Occasionally hydatid cysts are found, and sometimes a *cysticercus* of one or other of the tape worms.

Degenerations—

In all forms of acute inflammation, and in many bacterial conditions, the cortex and the kidney shows a pale colour, due to fatty degeneration. The kidney tissue is a highly specialised one, and reacts very readily to the toxic influences of any substances circulating in the blood, which have deleterious effects upon cell life.

A Sheep's liver has two distinct lobes and one small one; the colour is reddish-brown; it weighs about two pounds.

Sheep's kidneys are bean-shaped and not lobulated. They are about two to three inches long and weigh about two ounces each.

The spleen of a sheep is oyster-shaped and thin at the edges, it weighs about three ounces.

THE PIG.

THE CARCASE.

Tuberculosis—

The chief site of this disease is the pharyngeal lymphatic glands, which in some cases attain the size of an orange. The pleura and peritoneum may show tubercles. When the carcase is split the vertebral column often shows caries. The lumbar and the glands of the pelvis often show enlargement and caseation.

Anthrax—

When swine have anthrax, which is very seldom the case, the carcase is very dark and the skin is livid or red over the surface, the meat also being soddened. The neck of the animal is swollen and œdematous. The anthrax bacillus is said to be only found in this œdematous material.

Erysipelas—

The skin and often the mucous membranes are disfigured with livid or brown patches from engorged blood vessels and escaped blood. The flesh is pearly and softer than it should be. If the disease has existed for some time there is emaciation and dropsy. The heart often shows vegetative growths on the valves (Valvular Verrucose Endocarditis).

Swine Fever—

The carcase of an animal thus affected will often show petechiæ on the skin and under the mucous membrane. The glands often have a strawberry appearance.

THE PIG (continued).

Swine Plague—

The musculature often shows cloudy swelling, and the whole of the carcase signs of icterus (jaundice). Adhesions of the pleura are frequently noticed, and a general enlargement of all the lymphatic glands.

Cysticerci—

These are much more common and easily detected. They look like little bladders of water and occur in the flesh between the fibres, and often on the surface. The bladder, which is semi-transparent, contains a clear fluid and also a white body the size of a grain of rice; this latter encloses the head of *Cysticercus Cellulosæ*. Pork infested with these worms is called "measly," owing to the curious appearance of the flesh on section.

Trichinæ—

Trichina spiralis is found encysted in the musculature. Generally these parasites cannot be seen with the naked eye, consequently the flesh often looks normal, but occasionally owing to infiltration of fat into the polar ends of the cysts, the muscle shows small opal-like bodies about the size of sand grains. For the detection of the parasite, a microscope having a magnifying power of 40 diameters must be used. The bladder or shell containing the worm is not placed between the flesh fibres, but actually in a fibre.

Sarcosporidia—

In some cases the whole of the musculature is seen to contain caseous areas; these latter vary from microscopic size to as large

THE PIG (continued).

as kidney beans, and may be mistaken for both trichinæ and cysticercus cellulosæ. Microscopic examination removes all doubt.

Dropsy—

The flesh of an animal affected with dropsy is very sodden and wet. Such meat keeps badly and has occasionally a faint urinous odour.

Urticaria—

Commonly called nettle-rash. The red patches on the skin are often described as "diamonds." The distribution is irregular all over the body; at first dark, later becoming paler. Generally speaking Urticaria does not render the meat unfit for food. The skin is stripped off and the carcase passed.

THE HEAD.

Tuberculosis—

The glands in the head and neck should be examined for this disease. When affected they may only show œdema in the early stage, but later pin-point yellow specks (beginning of caseation) may be seen; as the disease advances these enlarge until the whole gland is caseous or broken down. Each gland may attain the size of an average orange when so affected.

Quinsy—

Also "STRANGLES" is characterised by a swelling in the neck and sore throat, the throat being dropsical, and sometimes part of the inside mortifies.

THE PIG (continued).

Foot and Mouth Disease—

The eruption in foot and mouth disease appears on the tongue and in the mouth (sometimes extending into the throat and nostrils), round the foot just above the hoof and in the cleft. The eruption consists of blisters, like those produced by boiling water, usually very small at first, but increasing, it may be, to the size of half an egg. Blisters inside the mouth, as a rule, are soon burst by the tongue, leaving bare red spots ; in some cases suppuration follows owing to infection with a pus forming organism.

THE LUNGS.

Tuberculosis—

This disease is known by the number of little rounded tumours or “pearls,” hardly seen when commencing, but growing to the size of a pigeon’s egg or larger, occurring mainly on or near the surface of the lungs and on the walls of the chest. On cutting open one of the “pearls,” its contents are found to be thick, cheesy matter, either of the same consistency throughout, or the centre may be softened or gritty. The cheesy matter is cream-coloured or yellowish. The lung tissue may be perfectly normal in appearance, or congested or partly consolidated.

Erysipelas—

The lungs are more or less inflamed ; the heart often shows vegetative growths on the valves.

THE PIG (continued).

Swine Fever—

This is often mistaken for erysipelas. The lungs show pneumonia, but the most typical lesion is found in the intestines, usually near the ileo-cæcal valve, in the form of an ulcer.

Swine Plague—

The lungs are commonly congested, and may be in part solidified. The pneumonia is of a fibrinous character, and is often accompanied by a sero-fibrinous pleuritis and pericarditis.

Cysticercus Tenuicollis—

This parasite is often found in cysts (the size of cyst varies from that of a pea to that of a hen's egg) hanging from the liver, omentum and lungs. The cyst contains fluid in which can be seen a small white body—the head of the parasite.

THE LIVER.

Anthrax—

The liver is nearly always enlarged and somewhat softened.

Tuberculosis—

This disease often attacks the liver of swine. The well-known tubercles are found scattered throughout the liver. The portal glands often show infection before the liver tissue.

Coccidiosis of the Liver—

The tubercles of this parasitic disease grow on the liver about the size of a pea, but tend to grow larger, and may be as big as a walnut. The walls are often thick and hard, and the liver substance round is compressed and hardened. The cyst-like

THE PIG (continued).

bodies contain a chocolate-coloured fluid, in which coccidia can be microscopically demonstrated. Occasionally the whole liver is permeated with the disease, cavities extending in many directions.

Cysticercus Tenuicollis—

Cysts containing this parasite are often found hanging from the liver.

THE SPLEEN.

Tuberculosis—

The spleen of a pig, if affected with this disease, contains a number of small tubercles which, when cut open, show a yellow cheesy-like growth.

Anthrax—

This disease is not very common amongst swine. The spleen of an infected animal is very much enlarged, and contains a black jelly-like substance.

Erysipelas—

The spleen of swine affected with this disease are usually enlarged.

Swine Fever—

The spleen may be enlarged.

THE KIDNEY.

Hydronephrosis—

This disease converts the kidney into a multilocular cyst, surrounded by the atrophied cortex.

Tumours—

Sarcomata and carcinomata both occur in the kidneys, as well as some benign growths. These tumours may attain a large size.

Hæmorrhage-nephritis—

nephritis
This condition is often found in pigs suffering with swine erysipelas.

THE PIG (continued).

Tuberculosis—

Tubercle of the kidneys is generally miliary at first, the tubercles of a greyish colour being scattered throughout the organ. As in other organs the central portion of the tubercle becomes caseous.

Pigs kidneys are bean-shaped and not lobulated ; they are flatter and sometimes paler in colour than other kidneys. They are about 4 inches long, and weigh about 4 ounces each.

A pig's liver has four distinct lobes (which are long and thin at the ends) and one small lobe ; it has a gall-bladder. The colour is red-brown, and the appearance of the surface is mottled. It weighs about 3 pounds (porker).

The spleen of a pig is long, narrow, and thin, and weighs about four ounces.

DISEASES WHICH ANIMALS ARE SUBJECT TO.

Anthrax, Abscesses, Tuberculosis, Actinomycosis, Bacilliary Necrosis, Pneumonia, Pleurisy, Peritonitis, Pericarditis, Pyæmia, Bacterial Endocarditis, Osteomyelitis, Navel ill or Joint ill, Septicæmia, Septic Metritis, Septic Intestinal Diseases. Urticaria, Nettle-rash or Diamonds, Black Leg or Black Quarter, Malignant œdema, Louping ill, Braxy, Cattle plague or Rinderpest, Contagious Pleuro-pneumonia of Cattle, Malignant Catarrh of Cattle, Glanders and Farcy, Tetanus, *Cysticercus bovis*, *Cysticercus cellulosæ*, *Trichina spiralis*, *Cysticercus tennicollis*, *Cœnurus cerebralis*, Hydatid Cysts or *Echinococcus*, Distomatosis or Rot, *Strongylus rufescens*, Mange or Scab in Sheep, Bots or Warbles, Maggots, Anæmia, Leucocythæmia, Red Water, Hydramia, Jaundice, Uræmia, Sapræmia, Foot and Mouth Disease, Swine Fever, Swine Erysipelas, Johne's Disease, Tumours (malignant and benign).

Conditions which resemble Tuberculosis.

ACTINOMYCOSIS OF THE LIVER—

Multiple sarcomata in any part of the carcase, particularly in the liver, kidneys, spleen, lymphatic glands and lungs.

CALCIFIED ECHINOCOCCAL CYSTS—

Particularly in the liver of cattle.

PYÆMIA—

Multiple abscesses found in the liver, lungs, spleen, kidneys, lymphatic glands, and throughout the whole of the musculature.

SARCOSPORIDIA—

Caseous areas about the size of kidney beans found throughout the musculature, particularly in sheep.

STRONGYLUS RUFESCENS—

Lungs of sheep affected present a similar appearance to miliary tuberculosis.

STRONGYLUS FILARIA—

Lungs of sheep show large yellow nodules.

ABSCESSSES—

Local abscesses & inflammatory changes may be mistaken for tuberculosis.

Points to be taken into account when dealing with Lesions resembling Tuberculosis.

- (1) None of the other bodies produce caseation to the same extent as living tubercle bacilli.
 - (2) The true tubercle is a progressive lesion, whereas the pseudo-tubercle often remains local.
 - (3) The species of animal under observation ; true tuberculosis is rare in sheep and goat.
 - (4) The absence of other parasites capable of exciting the same kind of growth.
-

The finding of tubercle bacilli in the affected area by microscopic examination is decisive.

THE AGE OF A COW CAN BE OBTAINED BY EXAMINING THE TEETH.

It usually has two teeth at 2 years of age ; four teeth at $2\frac{1}{2}$ years ; six teeth at 3 years ; eight teeth at $3\frac{1}{2}$ years.

The age of Cows may also be approximately arrived at by counting the rings on the horns and adding two to their number.

HEIFERS—Cows which have never borne calves.

MAIDEN HEIFER—a young cow.

COW—which has had one or more calves.

BULLOCK—a properly castrated animal.

BULL—an entire male animal.

STAG—an improperly castrated animal (an animal castrated late in life).

STEERS—young cattle.

STIRK—a large calf or yearling bullock.

EWE—a female sheep which has borne lambs.

WETHER—a properly castrated male sheep.

GIMMER—a virgin female sheep.

TEG—a very young sheep.

RAM—an entire male sheep.

BOAR PIG—an entire male animal.

HOG PIG—a properly castrated animal.

GELT PIG—a maiden (female) animal.

Horse's Tongue is smooth on its surface, is narrower than the cow's tongue ; it tapers to within 4 inches of the end, when it widens out again in the form of a spatula. It has two circumvallate papillæ.

Cow's Tongue is rough on the surface, due to spine-like filiform papillæ, and tapers to a point. It has twelve circumvallate papillæ.

The Cow has thirteen pairs of ribs.

The Horse eighteen pairs.

A Cow's ribs are broader, flatter, and less arched than a Horse's ribs.

CYSTS.

Cysticercus Cellulosæ

found in the Pig, is the size of a small pea, is found between the muscular fibres. The head has the appearance of a small white bead. It is the cystic stage of *Tænia Solium* in man, about 10 ft. long.

Cysticercus Bovis

These cysts are smaller than those found in the pig. This is the cystic stage of *Tænia Mediocanellata* in man, about 15 ft. long.

Trichina Spiralis

is a minute worm found encysted in the muscular tissues of the pig.

Echinococcal Cysts

Hydatids, found in the lungs and livers of animals. Cystic stage of *Tænia Echinococcus* in the dog, $\frac{1}{8}$ th in. long.

Cysticercus Tenuicollis—

is found in cysts hanging from the liver, omentum, and lungs of pigs and sheep.

Cœnurus Cerebralis

is a cyst which may become large, and is found in the brain of sheep. Cystic stage of *Tænia Cœnurus* in the dog, about 1 ft. long.

Syngamus Trachealis

is found in the trachea of fowls, causing gapes.

Cysticercus Pisiformis

These cysts are usually found in the liver and omentum of rabbits. Cystic stage of *Tænia Serrata* in the dog, about 1 ft. long.

Cænurus Serialis

can be detected by passing the hand along the backs of rabbits, when elastic enlargements may be felt. Cystic stage of *Tænia Serialis* in the dog, about 1 ft. long.

Bothriocephalus Latus

The cystic stage of this tape-worm is found encysted in the muscles and organs of the pike, turbot, eel, trout. The cysts are white in colour.

GLANDS.

Positions of some of the Principal.

Cervical Glands

along the wall of the trachea.

Submaxillary Glands

on the inner side of the lower jaw.

Pharyngeal Glands

on either side of and behind the pharynx.

Parotid Lymphatic Glands

behind the articulation of the jaw, and in front of the animals ear.

Thoracic Glands

beneath the dorsal vertebræ, partly at their sides, and partly in the intercostal spaces.

Superficial Inguinal Glands

in the male, are situated in the mass of fat known as the "cod," just at the neck of the scrotum and side of the penis. In cows it can be seen when the udder has been removed.

Deep Inguinal Glands

in the pelvis.

External and Internal Iliac Glands

close to the origin of the arteries, about $2\frac{1}{2}$ in. lower down than the deep inguinal.

Lumbar Glands

beneath the lumbar vertebræ, situated in the lumbar muscles in the region of the loin.

Popliteal Glands "Pope's Eye"

They may be exposed by cutting through the thigh muscles immediately above, and posterior to the stifle joint on the track of the femoro-popliteal artery. Generally found in fat of "silverside."

Precrural Glands

They lie in the fascia intervening between a point in the panniculus carnosus, about 4 in. from its posterior angle, and the anterior muscles of the thigh.

Prescapular Glands

lie immediately anterior to the shoulder joint, covered by the origin of the mastoido-humeralis muscle.

Axillary Glands

a large cluster of glands covered by the scapula and its muscles.

Bronchial Glands

lie in the substance, at both sides of the trachea, near to its point of bifurcation into the two bronchis.

Mediastinal Glands

will be found in the form of a chain, situated in the mediastinal tissue between the right and left lungs, also under the branch of the aorta.

The Hepatic Glands

lie embedded in fat in the portal fissure of the liver.

Renal Glands

are situated at the hilus of the kidney, opposite to the second lumbar vertebræ.

The Spleenic Glands

lie in the hilus of the spleen, and in the ligament which attaches the spleen to the stomach.

Mesenteric Glands

are very numerous, and lie between the folds of the mesentery at some little distance from the intestine.

Suprasternal Gland

It is situated at the point of the anterior segment of the sternum, and is generally exposed when the animal is split open.

Anterior or Upper Cervical Glands

lie on the interior wall of the trachea posterior, to and a little above, and to the outer side of the submaxillary salivary gland.

Sub-Dorsal Glands

in the fat just beneath and attached to the spinal column.

Prepectoral Glands

found close to the first rib at the entrance to the chest.

Characteristics of the Flesh of Diseased or Unwholesome Meat.

Emaciation, wetness, placid, red-surface, with dark velvety looking appearance.

The flesh of healthy animals presents a cherry colour, the flesh having a marbly tracing of fat.

In most cases of giving an opinion of the fitness or unfitness of meat for human food, judgment should be given after the carcase has had an opportunity of setting, *i.e.*, becoming firm or otherwise. In many instances it is well to let a carcase hang from 12 to 24 hours before giving judgment upon it.

The flesh of animals slaughtered while suffering from milk or puerperal fever, is not wholesome food. In a case of this kind make an incision in the buttock above the pelvic bone, when a pungent odour will be detected.

A carcase which has not bled well, the heart, liver, and kidneys are cloudy.

No animal should be killed directly after a long journey. About twelve hours after being driven on hoof, and six hours after a railway journey; in winter a shorter time may be allowed.

Scours or diarrhæa is common with calves. It causes in the carcase much wetness of the tissues, and discolouration in the chest cavity.

By probing the flesh of carcasses, often unpleasant odours are detected, caused by diseased conditions, or from the physicing of the animal when alive. Boiling the meat assists in the detection of slight cases.

The carcase of a young pig which has had diarrhæa will be attenuated, and the flesh will have a wetness, which is absent in a more healthy carcase.

A distinction must be made between "high game" and putrid game. Birds, when wet and green at the back, are not wholesome food. If free from greenness at the back and fairly dry, they may be fit for food. The olfactory organ and the green appearance, must guide the Inspector.

Canned Food. The ends of the cans or tins should be concave; if convex, they are said to be "blown," and should be condemned. The presence of rust and angular indentations should prejudice the inspector.

Imperfect bleeding of animals is shown in the congested liver and lungs. The smaller subcutaneous vessels of the skin are always found to be full of blood, the carcase is soft and moist and generally shows a blotched or reddened appearance.

Local diseases not much advanced in the liver, lungs, kidneys, spleen, stomach, intestines, brain and heart, need not require the condemnation of the whole carcase, only the affected organ or part, though much depends on the duration of the disease and the condition of the carcase. The same applies to inflammation, fresh wounds, fractures, swellings and bruises. Doubtful carcasses should hang twenty-four hours before giving a final opinion.

Ptomaine poisoning generally occurs from cooked foods, *i.e.*, meat pies, jellies, soups, canned foods. Unclean utensils, unsound meat previous to cooking, and storage in insanitary places, are amongst the chief causes.

Taken generally, the conditions under which meat is considered unwholesome for food are when it is wet, soddened and flabby, with the fat looking like jelly or wet parchment, and having a cadaverous smell, or when partially putrefied. Good meat should be firm and elastic to the touch, scarcely moisten the fingers when pressed, and have no unpleasant odour. It should not "pit" on pressure. These, of course, do not touch the question of diseases, and two important facts should be kept in mind: Meat may be wholesome and yet unmarketable (poor and worn-out animals) and it may appear to be marketable and yet be unwholesome (Septicæmia). Putrefaction, emaciation, inflammation, and specific and parasitic diseases are common causes for condemnation.

When notice is given to examine meat or other food, and the owner is willing to surrender it (if found to be diseased, unsound or unwholesome) a surrender form should be filled in and signed by the owner or person in charge, it being a precaution that may prevent future trouble or complications.

When a person refuses to surrender, the only course open is to seize and carry it away to be dealt with by a magistrate.

Diseased, unsound or unwholesome meat or food, which is intended for the food of man, found by the Inspector, without previous notice having been given of it, is liable to seizure, and a prosecution can follow.

Parasites in Lungs.

Strongylus filaria and *rufescens* in the sheep.

Strongylus micrurus in cattle.

Strongylus paradoxus in the pig.

Echinococcal cysts.

**Points to Notice when in the
Slaughter=House.**

THE OX.**Mammary Glands or Udder.**

Both sides should be the same size and colour. When felt should be the same consistency throughout.

Abdominal Cavity, Belly and Intestines.

The covering should be perfectly smooth and of a uniform grey colour. Kernels or Mesenteric Lymphatic Glands should be solid, grey rounded bodies running in a series along the sides of the intestines, nearly all being the same size.

Bladder, Rectum, or straight gut, and in females the Uterus or calf bed.

These organs should have the same uniform smooth covering as the intestines.

The Spleen or Milt.

It is practically flat and almost rectangular in shape, should have a smooth covering and be of a bluish colour when first removed; afterwards it becomes a reddish brown. It is 14 in. to 18 in. in length, and about 4 in. wide and $\frac{1}{2}$ in. thick. Notice any abnormal enlargements.

The Liver is a solid organ.

When passing the hand over it, it should feel solid and uniform in its consistency. The reddish brown colour should be the same throughout; lumps and white markings should be absent.

The lining Membrane of the Abdominal Cavity called the Peritoneum.

Should be perfectly smooth; it is transparent. The different colour of the fat and muscle can be easily recognised through it. Shots or roughening of this membrane are causes for closer inspection.

The partition (midriff or skirt) between the chest or belly cavities is the Diaphragm. When this is cut through the lungs will be seen.

The chest is lined with a perfectly smooth membrane called the pleura, which is transparent, showing the chest walls, ribs and muscles, between the ribs. Here you look for the "grapes" or tubercles of tuberculosis. Also see if there are any signs of the lungs having adhered to the chest.

The Lungs.

Should be of a uniform pink colour, perfectly smooth on the surfaces; here look for tubercles. Sometimes they cannot be seen, yet they can be felt by grasping one lung in each hand and carefully examining.

The Heart.

Examine the base of the heart for red thready growths, commencement of tuberculosis. Cysts of *Cysticercus Bovis*; Pericardium and valves for inflammatory changes.

The Kidneys.

Should be of a uniform brown colour, solid and lobulated. If tubercles are found they are very small in size.

The Head.

Notice any enlargement of the jaw bone for actinomycosis.

Red Patches.

Are sometimes found on carcasses, which are due to bruises ; these should be excised.

Bronchial and Mediastinal Glands (large lymphatics).

Notice these glands between the lungs and above the heart. Tubercular deposits may be found.

Stomachs.

There are four in number. The largest is the rumen. When this is opened a fourth division is recognised by the peculiar arrangement of its lining. This is the reticulum or honeycomb, and here you may find foreign articles which the animal has swallowed. When the rumen is being opened, the smell of medicine can be detected, should the animal have had any administered during the previous 30 to 50 hours. Tripe is the Rumen and Reticulum of cattle. Sometimes portions of the Abomasum and Rectum are also used.

Lymphatic Glands or Kernels.

Examine these for tuberculous deposits. Glands are sometimes removed. When this is done mutilation of the surrounding fat will be observed.

Peritoneum and Pleura.

Are sometimes stripped when affected with Tuberculosis ; examine diaphragm and lymphatic glands for evidence of disease. Sometimes the pleura is stripped because the animal has been "over stuck." Blood has got into the chest cavity, stained the pleura, and become unsightly, hence the removal. Sometimes adhesions of the lungs to the chest wall will cause the butcher to remove the pleura.

Intestines and stomach should be free from blotches, ulcers, hemorrhages and corrugation.

The flesh of the goat is dark in colour and has a peculiar goaty smell. The fat is of a dull straw colour ; the inside fat is ivory white. The bones are smaller in the goat than in the sheep. The vertebral column has a distinct prominence. The limbs are much longer than those of sheep.

Horse flesh is very coarse in texture, dark in colour, has a peculiar sickly smell and greasy feel. The fat is oily and yellow in colour. Analysts examine for the presence of glycogen.

HOW TO TELL THE SEX OF CARCASES.

The carcase of a **Cow** will be recognised by the flat appearance of the flanks near the buttocks. The pelvis is large and contains very little fat. The pelvis (or aitch) bone is thin. The udders are often removed, the surrounding fat and connective tissue is drawn over and skewered to hide the evidence of trimming.

The carcase of a **Maiden Heifer** can be recognised by the large amount of udder fat present, which is smooth, solid and rounded, and of the same colour throughout.

The carcase of an **Ox** is recognised by the well developed scrotum or cod fat. The retractor muscles are very small and ill-developed, and a portion of the penis is always present. The pelvis is very narrow and usually well filled with fat. The pelvis (or aitch) bone is much thicker than that of the cow, but not so thick as that of the bull.

In the carcase of a **Bull** the scrotal fatty tissue known as the cod is poorly developed. The aitch or pelvis bone is larger, the pizzle, the erector muscle and the muscles of the neck and shoulder are well developed. The flesh is coarser and darker in colour than in the cow or heifer.

The carcase of a **Ram Sheep** or "**Tup**" can be recognised from the wether or castrated sheep by the same points as the bull from the ox, except that the whole of the penis is left on the carcase.

The carcase of a **Ewe Sheep** can be recognised from the maiden ewe by the same points as the cow from the maiden heifer.

When suspicious of the carcase of a **Pig** being a boar pig, look for the tusks, retractor muscles and the root of the penis ; also the skin over the four quarters is usually thick and the muscular tissue is dark and coarse.

The carcase of a **Sow Pig** has no tusks, the skin is thinner and the flesh paler than that of the boar. When carcasses have been cut up it is more difficult to tell the sex.

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POINTS TO REMEMBER WHEN EXAMINING FISH.

When sound should be bright in colour and the flesh firm.

Eyes

When fresh, the eye will be prominent and full, the pupil dark, the opposite alone is not sufficient to condemn fish.

Gills

In fresh fish the gills are red.

Scales

In fresh fish are generally bright and glistening appearance. Bruised and damaged fish soon become unfit for human food. A fresh fish is stiff and rigid. Sound fish should not "pit" on being pressed. Line-caught fish are always more valuable and look in better condition than trawled fish.

The sense of smell is of all importance when examining fish singly. When opening boxes of fresh fish the sense of smell may lead the Inspector astray, because when boxes are freshly opened the odour is usually unpleasant.

Suspicious of Unsound Fish

When flesh strips readily from the back bone, has a reddish discoloration, when gills become grey and slimy, eyes sunken and smell offensive.

Shell Fish

Oysters and mussels when fresh are difficult to open. Ascertain the source and make inquiries for possible sewage contamination. Crabs and lobsters should not show signs of discoloration under the tail and apron; the tail is elastic when sound. In Periwinkles the sense of smell is a good guide.

Shrimps

When not fresh are soft and sticky, and if in a barrel they will be found to be quite hot to the hand, if the latter be plunged into the middle of the barrel.

FISH.**Salmon Disease**

The first indications of this disease are whitish patches on the head and the base of the fins. The patches spread and form deep ulcers, the fish becomes weak and helpless, and is covered on the head and body with whitish ulcers. The disease is caused by a micro-organism (*Bacillus Salmonis pertis*), which gains access through abrasions or ulcerations of the skin.

Saprolegnia

Is a colourless mould, which penetrates into the flesh.

Bothriocephalus Latus

The cystic stage of this tape-worm is found encysted in the muscles and organs of the pike, turbot, eel, trout, etc. The cysts may be recognised by their white colour and transparent surrounding tissue.

Tetrarhynchus

The cystic stage of this tape-worm is found in plaice, halibut, and sprats. The tape-worm is found in sharks.

Epibdella

Is a flat worm which resembles a box-leaf in shape ; it is of a dull white colour, and is usually found in the turbot. There is no certain means of detecting the presence of these worms from the outside appearance of the fish, but usually they are abundant in fish that are lean and out of condition.

FOWLS.**Chip**

Chip is the name given to a kind of fever common in dairy farms, and seemingly derived from damp and cold. Young chickens are especially liable to it.

Turn

Is apoplexy, affecting birds overfed and taking little exercise. Without warning the fowl totters and falls to the ground or drops from its perch.

Scour

Is a diarrhœa due to various causes. It often results from improper food or sudden change of food. Without treatment the bird may soon succumb.

Gapes

Is a distressing malady of domestic fowls and pigeons, caused by small nematoid worms in the windpipe. The disease is so named from the gaping attitude assumed by the affected bird.

Bronchitis

The symptoms of this disease are difficulty of breathing, feverishness, rattling in the throat, and coughing.

Bumble-Foot

Lameness, due to a swelling in the ball of the foot, caused by the accumulation of matter, which somewhat resembles an acorn.

Enteritis

Simple enteritis may be caused by fowl having partaken of some irritating substance.

Fowl Cholera

The disease is characterised by its rapid, fatal course. The birds die suddenly with apoplectiform symptoms, or show signs of illness for several hours, or three days at most. Upon a post mortem examination one finds a hæmorrhagic inflammation of the small intestine, and a chocolate-coloured intestinal content; occasionally,

also, croupous enteritis, numerous hæmorrhages under the epicardium and a congested or inflammatory condition of the lung tissue.

Tuberculosis

The disease is most readily recognised in the lungs and liver. These organs are seen to be more or less closely covered with small yellowish spots. In a very little time they increase in size and form masses. The colour becomes paler and the texture soft.

Roup

This is probably the most common disease of poultry, and often appears among birds crowded together in ill-ventilated houses and on damp runs. It is characterised by an offensive discharge from the nostrils and eyes, swelling round the eyes, and purpling of the wattles. Often there is a false membrane. The disease is very contagious, and even the eggs laid by roup-y hens are not wholesome.

Pip

Is indicated by a white horny skin growing on the tip of a bird's tongue. It is not serious, but shows the bird is out of sorts and may be regarded more as a symptom than as a separate disease.

Pneumonia

Inflammation of the lungs. The symptoms are difficult breathing, gasping, and panting, the bird spending most of its time lying down.

Peritonitis

Inflammation of the lining membrane of the abdomen, sometimes caused by injuries, but more often due to the escape of a ruptured ovum or egg into the abdominal cavity.

RABBITS.

Coccidiosis of Liver

The coccidium oviforme attacks the epithelium of the bile ducts. A liver affected in this manner is characterised by the appearance of small, white, rounded foci, which appear here and there scattered over its surface. These foci are formed of greatly distended bile ducts, surrounded by fibrous tissue and containing large numbers of coccidia.

Cysticercus Pisiformis

Has very little effect on the flesh, except when present in large numbers, and then they cause emaciation. The cysts are found chiefly in the liver and omentum, and have a close resemblance to *Cysticercus tenuicollis* as regards distribution.

Cænurus Serialis

May often be detected by passing the hand along the back of the animal, when slight elastic enlargements may be felt. In the carcase the cysts will be found in the tissue between the muscles which are pale, watery, and flabby. The cyst if opened will be found to contain fluid, and around the walls of the cyst some 100—200 heads are attached.

Tuberculosis

In the wild rabbit is rare. It is more often found in tame rabbits; the animal is usually emaciated. The liver and lungs are the organs chiefly affected, these being studded with tuberculous nodules of various sizes, containing caseous, purulent, or calcareous deposits.

THE LAW.

PUBLIC HEALTH ACT, 1875.

SEC. 116.—Any Medical Officer of Health or Inspector of Nuisances may, at all reasonable times, inspect and examine any animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, or milk exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale, and intended for the food of man, the proof that the same was not exposed or deposited for any such purpose, or was not intended for the food of man, resting with the party charged; and if any such animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, or milk appears to such Medical Officer or Inspector to be diseased or unsound or unwholesome or unfit for the food of man, he may seize and carry away the same himself or by an assistant, in order to have the same dealt with by a justice.

SEC. 117.—If it appears to the justice that any animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, or milk so seized is diseased or unsound or unwholesome or unfit for the food of man, he shall condemn the same, and order it to be destroyed or so disposed of as to prevent it from being exposed for sale or used for the food of man; and the person to whom the same belongs, or did belong at the time of exposure for sale, or in whose possession or on whose premises the same was found, shall be liable to a penalty not exceeding twenty pounds for every animal, carcase, or fish, or piece of meat, flesh, or fish, or any poultry or game, or for the parcel of fruit, vegetables, corn, bread or flour, or for the milk so condemned, or, at the

discretion of the justice, without the infliction of a fine, to imprisonment for a term of not more than three months.

The justice who, under this section, is empowered to convict the offender, may be either the justice who may have ordered the article to be disposed of or destroyed, or any other justice having jurisdiction in the place.

SEC. 118.—Any person who in any manner prevents any Medical Officer of Health or Inspector of Nuisances from entering any premises and inspecting any animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, or milk exposed or deposited for the purpose of sale, or of preparation for sale, and intended for the food of man, or who obstructs or impedes any such Medical Officer or Inspector or his assistant when carrying into execution the provisions of this Act, shall be liable to a penalty not exceeding five pounds.

SEC. 119.—On complaint made on oath by a Medical Officer of Health, or by an Inspector of Nuisances, or other officer of a local authority, any justice may grant a warrant to any such officer to enter any building or part of a building in which such officer has reason for believing that there is kept or concealed any animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, or milk which is intended for sale for the food of man, and is diseased, unsound or unwholesome, or unfit for the food of man; and to search for, seize, and carry away any such animal or other article in order to have the same dealt with by a justice under the provisions of this Act.

Any person who obstructs any such officer in the performance of his duty under such warrant shall, in addition to any other punishment to which he may be subject, be liable to a penalty not exceeding twenty pounds.

PUBLIC HEALTH ACTS AMENDMENT ACT, 1890.

SEC. 28 (1).—Sections one hundred and sixteen to one hundred and nineteen of the Public Health Act, 1875 (relating to unsound meat) shall extend and apply to **all** articles intended for the food of man, **sold** or exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale within the district of any local authority.

(2).—A justice may condemn any such article, and order it to be destroyed or disposed of, as mentioned in section one hundred and seventeen of the Public Health Act, 1875, if satisfied on complaint being made to him that such article is diseased, unsound, unwholesome, or unfit for the food of man, **although the same has not been seized** as mentioned in section one hundred and sixteen of the said Act.

DUTIES OF INSPECTOR OF NUISANCES PRESCRIBED BY LOCAL GOVERNMENT BOARD.

Dated December 13th, 1910.

Clause 7.—He shall, from time to time, and forthwith upon complaint, visit and inspect the shops and places kept or used for the preparation or sale of butchers' meat, poultry, fish, fruit, vegetables, corn, bread, flour, milk, or any other article to which the provisions of the Public Health Acts in this behalf apply, and examine any animal, carcase, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, milk, or other article as aforesaid which may be therein; and in case any such article appear to him to be intended for the food of man, and to be unfit for such food, he shall cause the same to be seized, and take such

other proceedings as may be necessary in order to have the same dealt with by a justice. He shall also take such action as it may be necessary for him to take by virtue of the provisions of the Public Health (Regulations as to Food) Act, 1907, and any Regulations made thereunder provide : That in any case of doubt arising under this paragraph, he shall report the matter to the Medical Officer of Health, with the view of obtaining his advice thereon.

GLOSSARY OF TERMS :

- CYSTS—A Bag or Bladder.
 NECROSIS—Local death of any part.
 INFARCTS—Clots of blood.
 HÆMATOMA—Tumour composed of blood.
 SARCOMA } Cancer.
 CARCINOMA }
 MELANOTIC—Black.
 HYDATIDS—Cystic stage of *Tænia Echinococcus*.
 GASTRO-ENTERITIS—Inflammation of stomach and small intestines.
 CALCULUS—A stony concretion in any gland or organ.
 GLAND—An organ which performs the functions of secretion.
 PYÆMIA—Generalised abscesses.
 SEPTICÆMIA—Blood poisoning.
 MARASMUS—Emaciation or wasting.
 TOXIC—Poisoning.
 INGUINAL—Connected with the groin.
 LYMPHATICS—Minute vessels which carry lymph (a colourless fluid) from all parts of the body.
 LYMPHATIC GLANDS—Kernels.
 THE PANCREAS—Sweetbread.
 THE MAMMARY GLAND—The udder.
 URTICARIA—A cutaneous eruption, Nettle Rash.
 TESTICLES—"White meat" & "Lamb's fry."
 UTERUS—The womb.
 PARTURITION—Being delivered of young.

FORM FOR VOLUNTARY SURRENDER OF MEAT, FISH, OR OTHER ARTICLES OF FOOD.

<p>Sanitary Authority. _____ PARTICULARS OF FOODS, &c., SURRENDERED. _____ Date.....191 Time..... Article Examined..... Where Examined..... Result of Examination..... Name and Address of Owner..... Surrendered by..... Destroyed at..... Remarks.....</p>	<p>Sanitary Authority. _____ PUBLIC HEALTH ACT, 1875. _____ <i>Inspector's Office :</i> This is to Certify that Mr..... has this day Voluntarily Surrendered to me, the undersigned :..... which upon Examination (was) (were) found to be..... and unfit for the food of man. Signed,Sanitary Inspector. Date.....191</p>	<p>Sanitary Authority. _____ Public Health Act, 1875, and Sect. 28 Public Health Acts Amendment Act, 1890 <i>Inspector's Office :</i> This is to Certify that I, the undersigned, being THE OWNER of which upon Examination by Mr..... Sanitary Inspector to the Sanitary Authority (are) (is) declared by him to be.....and unfit for the food of man, do hereby Voluntarily Surrender the said.....for the purpose of having same destroyed or so disposed of as to prevent (it) (them) being used for the food of man. Signed..... Date.....191</p>
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Search Warrant for Unsound Food.

To *the Inspector of Nuisances of the*
Sanitary Authority of the of
in the County of , *acting by the Council as*
the Sanitary Authority for the said .

Whereas Complaint on oath was this day made before me, the undersigned, one of His Majesty's Justices of the Peace acting in and for the of by you the above-named for that you have reason for believing that in in the above-named there is kept or concealed certain which is intended for sale for the Food of Man, and is contrary to the provisions in that behalf of the Public Health Act, 1875.

These are therefore to command you, the said of the of the to enter the said and to search for, seize, and carry away any such , in order to have the same dealt with by one of His Majesty's Justices of the Peace under the aforesaid Public Health Act, 1875.

Given under my hand and Seal this day of in the year of Our Lord One thousand nine hundred and at in the aforesaid.

L. S.

Magisterial Order for Condemned Meat or Food.

To _____ of _____ the Inspector of
Nuisances of the Mayor, Aldermen, and Burgesses of
the _____, being the Local Authority under the
Public Health Act, 1875, for the Urban Sanitary Dis-
trict of _____, and to all others whom it may concern.

Whereas you, the said _____ as such
Inspector of Nuisances as above-mentioned, have
this day brought, or caused to be brought and
shown to me, the undersigned, one of His Majesty's
Justices of the Peace in and for the _____ of
certain (a)

And Whereas, it hath been satisfactorily
proved to me upon Oath and otherwise, and further
appeareth to me upon examination and inspection
of the said _____ that the same was on
the _____ day of _____ 191 _____ exposed
for sale or deposited in (b) _____ for the
purpose of or preparation for sale at _____,
and was intended for the food of man; and that
the same was diseased, or unsound, or unwhole-
some, or unfit for the food of man; and that you
did, on the _____ day of _____ yourself,
or by an assistant, seize and carry away the same,
in order to have the same dealt with by a Justice.

Now Therefore, in pursuance of the pro-
visions in that behalf of the Public Health Act,
1875 [and of the Public Health Acts Amendment
Act, 1890], I DO HEREBY CONDEMN the said
(a) _____ and ORDER you to destroy the
same, or cause it to be destroyed, or so dispose
of it as to prevent it being exposed for sale or
used for the food of man.

Given under my Hand and Seal, this
day of _____ 191 _____

L. S.

How Meat is usually cut up, and Approximate Weights of each part.

At the Slaughter-house the carcase is split down centrally through the back-bone into two equal halves or sides of beef. The butcher further divides by sawing through the back-bone at about the sixth joint counting from the rump end. Then enters his knife under the first rib, passes it along to the end of the rib, and then downwards to separate the thick flank from the brisket. The side is then divided into fore and hind quarters, of which the average weights are 44 stone and 46 stone respectively. Four divisions take place as follows :—

Hock	...	...	...	14 to 18 lbs.
Round and Buttock	...	...	...	40 to 48 „
Aitchbone	...	...	...	12 to 14 „
Rump	...	...	...	30 to 32 „
Thick Flank	...	...	...	20 to 24 „
Sirloin	...	...	...	36 to 40 „
Six Ribs	...	...	...	28 to 30 „
Four Ribs and Leg of Mutton piece	...	...	...	40 to 45 „
Two Ribs	...	...	...	40 to 45 „
Thick Flank	...	...	...	24 to 26 „
Brisket	...	...	...	20 to 22 „
Neck	...	...	...	40 to 45 „
Shin	...	...	...	8 to 12 „

Mutton.—A good English Sheep weighs when killed, cleaned and cooled, about 70 lbs. It is split down like a carcase of beef, and is cut up as follows :—

Leg	...	...	...	about $9\frac{1}{2}$ lbs.
Loin	...	...	...	„ 8 „
Neck	...	...	...	„ 7 „
Shoulder	...	...	...	„ $6\frac{3}{4}$ „
Breast	...	...	...	„ 4 „

Pork.—An average porker after slaughter weighs about 100 lbs. ; it is cut up as follows :

Leg	...	...	...	9 lbs.
Loin	...	...	...	17 „
Spring	...	...	...	8 „
Hand	...	...	...	4 „
Spare-rib	...	...	...	5 „
Head	...	...	...	5 „

Approximate Weights of Organs.

Stomach and Intestines with contents:

	Fasting Ox	-	146-244 lbs.
	Calf - - -	-	7-26 lbs.
	Hog - - -	-	11-23 lbs.
Heart -	Ox - - -	-	4-6 lbs.
	Horse - -	-	6-10 lbs.
	Pig - - -	-	1 lb.
	Sheep - -	-	$\frac{1}{2}$ lb.
Spleen -	Ox - - -	-	1-2 lbs.
	Horse - -	-	1-1 $\frac{1}{2}$ lb.
	Sheep - -	-	$\frac{1}{4}$ lb.
	Hog - - -	-	$\frac{1}{4}$ lb.
Liver -	Ox - 6-12 lbs.	Average 10 lbs.	
	Horse, old -	-	6-12 lbs.
	„ young -	-	12-16 lbs.
	Sheep - - -	-	$\frac{3}{4}$ -2 lbs.
	Hog - - -	-	2-5 lbs.
Kidney (each)	Ox - - -	-	1 lb.
	Horse - -	-	1 $\frac{1}{2}$ lb.
	Sheep - -	-	$\frac{1}{8}$ - $\frac{1}{4}$ lb.
	Hog - - -	-	$\frac{1}{4}$ - $\frac{1}{2}$ lb.

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MEMORANDUM.

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