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## DISEASES OF ANIMALS.

## Inoculation for Lung-sickness.

At the request of numerous correspondents the following practical hints on the inoculation of cattle, as a preventive of Lung-sickness and Contagious Pleuro-Pneumonia, by Veterinary Surgeon Soga are republished for general information:—

Description of a Pleuro-Pneumonic Lung:—When placed on a table the lung preserves its contour, the pleura very often is roughened and opaque, and the involved portion stands prominently above the surrounding lung tissue. The lung is enormously heavy solid, and if cut through has a marbled

appearance.

This mottled appearance is due to hepatisation of lobular tissue and to the interlobular tissue thickening. The lung is friable and breaks with a granular fracture; when compressed an enormous quantity of bloody fluid (serum) exudes. In early stages, the lung has a yellowish watery appearance (wdematous). There is an extension of white lines from the first seat of the disease, these are the interlobular tissue lines. From these in the first stage the best virus is obtained. To obtain it pure (golden) take a sharp-pointed knife, and make an incision in the band," in the same line," form a pouch by gently separating the walls, and by means of a teaspoon extract the virus carefully which has gravitated from the surrounding tissue into the pouch. Continue this operation of opening these lines until you have secured sufficient virus for the number of cattle that you intend to inoculate.

Great care must be exercised in selecting virus, no blood-coloured virus must be taken. To be sure of procuring nothing but good virus, after having killed the animal and removed the lung, place it in a cool place for one or two hours so that the blood contained in the lung may coagulate.

Having selected the virus, place it for convenience in twoounce wide-mouthed bottles.

For keeping purposes add one drachm of pure glycerine to every ounce of virus.

In experimenting with virus kept in this manner, it has been a most noticeable fact that glycerine preserves it for a time, but the virus, in the course of a month or two, loses its action, and becomes inert.

Considering this point, it would be perhaps advisable not to keep the virus for more than a week.

More uniform results are obtained from using the virus up to the *third* day after procuring. The instruments to be used are an inoculating needle, a pair of ordinary scissors, a docking iron, for searing the amputated tail, and woollen threads, the best form of thread being white Berlin wool or Scotch fingering; let these be cut into four-inch lengths, and place them in your wide-mouthed bottle of virus. Three hundred may be saturated in a two-ounce bottle of virus—one only to be inserted into each tail.

The inoculation needle best adapted is somewhat different from that in general use, in that it is about five-inches long, has a handle, the eye being at the sharp end. An admirable needle of this kind can be made out of a five-inch sack needle, by putting a handle at the blunt end, and making an eye at the sharp end, sufficiently large enough to admit one of the woollen threads. Mr Baker smith, of Fort Beaufort, has made me some admirable steel needles of the above description. Proper needles for inoculating may be had from Messrs. Meyer & Meltzer, Instrument Makers, Cape Town, or from the Colonial Bacteriologist, Graham's Town. The latter is now prepared to supply prepared virus for inoculation. The object of this form of needle will be seen in the mode of operation.

In the management of cattle great care must be taken in not harassing, beating or in any way injuring the animal. The animal must on no account be caught by the tail.

One point the operator has to remember is, that whenever the tail is stretched or beaten, or indeed any part of the body injured, after the virus has been introduced into the system, it will most surely be a source of annoyance, by swelling.

In great measure, success of this operation is due to the care with which one treats the animals.

It is not necessary to cast the animal, unless it be a most ferocious one.

Having secured the ox or cow with a riem by the horns, a stalwart native takes hold of each horn, a riem is placed by another man round the hind legs, but does not make a tight noose of the riem, just placing it round, and stands on the animal's right side, this rope is purely as a prevention to

the operator being injured.

With scissors and needle ready, and an assistant with a saucer containing the saturated threads covered by a cloth for protection when one is extracted, the operator with scissors clips the hair of the brush at the point of the tail, for a distance of two inches (upwards). Having done this, he steadies the brush with his left hand, and passes the needle from the point of the tail for a distance upwards, under the skin, in a straight line to the tail, for an inch and a half, passing the point of the needle by a gentle pressure out. He then takes one of the threads from the assistant, threads the needle, both ends of the thread being of the same length. He now retracts the needle, with the thread, gently compressing the lower orifice with his left thumb, retracts the

needle, and clips off the thread nearest to the needle leaving the main thread in the opening which has been made. The advantage of this method of inoculation is that one gets a uniform quantity of virus into each animal, and no liability

to the thread coming out.

One can in this way inoculate 600 head of cattle in a day. Many people will say that they can inoculate so many hundreds. This is not the point: 400 done well is infinitely better than 600 done badly. This operation to be successful needs care, and one can only impress upon the operator the necessity of care and patience. These points if attended to will amply repay the operator in the after treatment of his cattle.

The after-treatment of inoculated cattle is the most trying,

but is minimised by his attention and care.

The operator's attention has to be directed from the fourth day after inoculation onwards, morning, noon, and night.

In the early morning if the cattle are kraaled, which should be the case, note as each animal rises, the manner in which the animal erects its tail, to see if there is any stiffness or inability to do so.

A goodly number of cattle should have taken the inoculation

by the tenth day.

This taking is manifested by a slight swelling at the seat of the operation, which if left alone will extend to the base of the tail.

A pock is expected by many; this is not necessary, as there may be a local subcutaneous extension of the introduced virus

from the seat of operation towards the base.

Attention again must be paid to the glands at the base of the tail commonly called the *kernels*. These glands are *lymphatic* glands, they perform in this case the duty of catching any deleterious matter from passing into the system.

It has been, and is the practice among many farmers of at once scalding or cutting out these glands. This is not the humane way. The swelling of this gland is secondary to the death, irritation, and swelling at the tip of the tail, consequently by amputating from the tip upwards until healthy tissue is reached there is no occasion of touching the kernels until they show indications of containing pus, or matter, which can be noticed by pressing on the tumour with the finger; should it besoft open it freely, and dress with the hereinafter mentioned dressing.

Attention must be paid to the point of the tail so that the swelling must not gain too great a hold before it be noticed. One day's inattention will cause weeks' work in inoculating.

Immediately there is a swelling at the point of the tail, and from the swelling there exudes a yellowish fluid resembling that introduced, do not hesitate, but amputate, see that the tail bleeds freely; to stop the bleeding, do not ligature but take a hot iron (docking iron) and sear the wound. The reason for this is, that where there is a predominance of swollen tails in cattle, there is danger of secondary inoculation at the open wound, not from the virus but from the germs of blood poison, which float about in large numbers. Care again must be taken that where there are any cows sadly neglected and swollen, these must be removed from the inoculated herd and kept aside, purely to prevent this septic inoculation. Many farmers have inoculated with pieces of lung, and have had dreadful results; these are due to septic inoculation: instead of inoculating with pure virus they have inoculated with septic virus.

After having amputated the tip, dress the tail and the

glands with a dressing composed of-

Linseed Oil... $1\frac{1}{2}$  pints.Turpentine......4 ounces.Carbolic Acid......2 ounces.

This dressing to be applied externally over the inflamed

surface daily.

Internally one tablespoonful of sulphur administered in a pint of water, this dose to be given daily: sulphur can be

made to mix tolerably well with water by first making it into a paste. In the course of a week the swelling will gradually subside.

Even in the treatment of pleuro, sulphur is a very good medicine, but in the after treatment of inoculated cases the effects are remarkable.

One can only state that scrupulous attention must be paid to the cattle from the fourth day after inoculation, till all have shown signs of having taken.

## Joint-Disease of Foals and other Young Animals.

In an article contributed to the Journal of the Royal Agricultural Society of England, by Professor John Pemberthy, of the Royal Veterinary College, London, he first describes the different names by which the disease is known: "Joint Ill," "Navel Ill," "Foal III," "Scrofulous Joint Disease" "Specific Arthritis," "Rheumatic Arthritis and Pyæmia," and states that it is most commonly observed in foals, lambs and calves, and less frequently in young pigs and puppies. It occasionally occurs in isolated cases only, while at other times it affects a large number of young animals. It invariably appears soon after birth. It affects all breeds, pure and cross-bred, but is more frequently met with in the former. The cause of the disease has been attributed to in-and-in breeding; scrofula or tuberculosis; improper feeding or working of the mare during pregnancy, or the suckling period, cold, damp, and a variety of local unhealthy conditions. But the Professor states that it is beyond question that the disease is due to a germ which may enter the system of the young animal while in the womb, but most probably after birth. But whether contracted in the womb during the act of parturition or subsequent to birth there is ample reason for believing that the germ usually enters the young animal at the navel, and he explains the manner in which this may occur as follows:—"At birth the cord passing through the navel is made up, amongst other matters, of vessels which in the womb carry the nutritive blood from the mother to the fœtus, and the used up impure blood from the fœtus to the mother. At birth this cord is severed, and the blood flow stopped by a clot which forms in the vesse's. Soon after separation the end of the cord shrivels, and the aperture through which it passes heals up The extremity of the cord in the navel dies, and under favourable circumstances be-comes absorbed. Conditions which favour the absorption of the dead part hasten the closing of the navel, so that, in the healthy new-born animal, there is a natural process to prevent the entrance of injurious matters through it. It is well known to physiologists and pathologists, that anything which retards the natural healing process favours the growth of microbes there, and affords a means for their entrance into the blood-vessels which distribute them through the system."

"It is important therefore, in view of the evidence that the germ of this disease enters through this opening, to inquire into those circumstances which interfere with the natural disposition of the navel to heal. In all probability anything which during pregnancy debilitates the system of the mother may have this effect. Improper feeding, insufficiency of material essential to the nourishment of the fœtus, want of exercise, and especially anything which causes the birth of the young animal considerably before its time, must be regarded with suspicion."

Further, malignant parturient fever in ewes and abortion in mares should be looked upon with suspicion, as being related to the poison or germ which produces Joint-ill, and the fact that the disease appears in a larger proportion of males than females would indicate that the urine which is dribbled by the male interferes with the healing of the navel. But all such matters though important as predistrosing causes.