Treatment.—Fortunately this is simple, but it entails a commodity or commodities which are wanting in many districts, without which the treatment in the majority of cases will fail: that is, an abundant supply of green food; this by all means is necessary, as in many instances when hundreds of small and large stock have to be fed daily which cannot rise and search for food, tubers and green food come in handy, turnips, carrots, mangles, green barley, indeed any green food. Forage and hay in the early stages have an irritating effect on the animal, tending greatly to increase the mal dy.

In the first stages the internal administration of Epsom salts, one pound, in 3 quart bottles of water; followed up by twice daily for a few succeeding days in the drinking water, Epsom salts 1 ounce, hyposulphite of soda ½ ounce, chlorate or nitrate of potash 2 drachms.

As a mouth wash (I may here give a few of the most common): (1) Borax and tincture of myrrh each 1 ounce, water 1 quart; (2) Carbolic acid 1 drachm, vinegar 1 pint, water 1 pint; (3) Borax 1 ounce, alum 1 ounce, water 1 quart. These formulæ may be used in the case of sheep, goats, and pigs.

To the teats apply, (1) Tincture of myrrh 1 ounce, glycerine 10 ounces, twice a day; (2) Permanganate of potash 20 grains to the quart of water; no carbolic preparation should be used as an application to the teats, as the milk will become tasted.

As an application to the feet, after thorough washing and poulticing, where necessary, sulphuric acid 1 ounce, water 4 ounces, to be supplied with a feather to the abraded surfaces; having dressed the feet apply a bandage previously well saturated in Stockholm or Archangel tar.

This, gentlemen, is concisely the nature of foot-and-mouth disease, its symptoms and treatment; there are many other formulæ in use, these are the simplest and best, and should the farmers take trouble to attend to their cases at the commencement, serious results will be arrested, such as a six to nine months' treatment of lame cattle, until the hoof has regained itself.

One word, with your permission, upon the *post-mortem* appearances, and the use of the flesh. In all ordinary cases there are no lesions to be observed in the carcase, blood, or internal organs, other than in the mouth, feet, &c. In bad cases we have the flesh flabby, and it does not set properly, dark in colour often, and having an effusion under the skin of a watery blood appearance (magenta colour); these conditions are only found in neglected cases. The only internal lesions we may find will be small vesicles on the mucous membrane of the air passages. In the first stomach (*groot pens*) we find ulcers on the internal surface, oval in shape and raised above the level of the natural surface; third stomach (*blaar pens*), there are no ulcers, but between the leaves there are patches or blotches having a congested appearance; fourth stomach or *melk pens*, at the piloric orifice, or lower opening of the stomach, we find small ulcers, about the size of a castor-oil bean, dusty in colour.

As regards the use of the meat there is no danger in using it only the head, feet, and stomach must be condemned, the milk can also be used with impunity if boiled.

J. F. SOGA, V.S.

Rinderpest.

Cattle Plague, Contagious Typhus, Steppe Murrain, are a few synonyms by which our new Colonial enemy is termed. In giving an idea of its vitality, let it be understood that lung-sickness and redwater are simply fools to it. Termed Rinderpest by the Germans, the word signifies disease of the ox, and originates in the steppes of Russia and Kherson District. Every attack of cattle plague that Britain has suffered from, has been introduced from Russia, indirectly from Germany, Turkey, Egypt, and Schleswig-Holstein.

The disease is an enzoetic affection (attacking the lower animals), and wherever the Russians are engaged in war, so sure cattle plague follows. Rinderpest is well known in India, China, Tartary, and Mongolia. Not only is it indigenous to the ox, but it affects sheep, goats, and other ruminants; the latter animals, however, never suffered so severely as cattle, the disease being in them less contagious and less fatal.

As in redwater, rinderpest once having passed through a country, those animals which grow up in infected soil undergo a natural inoculation or immunity to the disease, neighbouring or foreign cattle when brought into the area invariably die; these naturally inoculated cattle are capable of disseminating the disease to healthy, although they of themselves are not liable to cattle plague.

Rinderpest may be defined as: an eruptive fever of a most destructive type the lesions or manifestations of the disease being localised in the skin and mucous membranes. Strange to say, the disease was once looked upon as being a small-pox in cattle and by some as a typhoid affection; it undoubtedly resembles small-pox in the human subject. The *actual cause* of rinderpest is "as described by a Surgeon Semmar," an organism of a globular shape, gradually lengthening into a staff (*bacillus*) possessing great vitality, shown conclusively from experiments which have taken place, animals having been inoculated from the earth and decomposed carcase many months after. The germ can also be kept in an active state in the mucous discharges from the nose and eyes for many days, having been known to remain active for a period of three months.

Its dissemination resembles that of foot-and-mouth disease, the extraordinary methods being by the flesh of dead animals, mucous from the nose and mouth, and the discharge from the eyes.

Fortunately, cattle plague never spreads far through the medium of the atmosphere like horse-sickness, a ditch or brook is said to be enough to stop its progress.

Fatality.—It is the most fatal of all diseases that cattle are heir to; very few animals recover, indeed not more than from 5 to 7 per cent., and very few escape it. Its duration may be put down at from a few hours to 4 or 5 days; should an animal get over the sixth or seventh day it may be looked upon as safe; the usual duration is 36 hours to 5 or 6 days. Many animals may die suddenly and show comparatively few external symptoms. By ingestion the natural incubative period is about 4 or 5 days; by inoculation it is much shorter, being about 2 days, rarely if ever extending in either case over 10 days. The nature of the lesion or manifestation is simple granulo-adipose degeneration of the superficial cells of the tissues generally, skin, &c. It does not always manifest itself in the same manner, as in some cases nervousness is apparent by trembling, spasm, and much excitement, even delirium and shivering; in other cases it comes on as an enteric affection with bloody purging; at other times well marked skin lesions. The warmer the climate, strangely enough, the greater and more severe the skin symptoms.

In the early stages of cattle plague the temperature runs high, from 105° to 107° Fahr., indicating excessive fever, the animal appears dull, its normal functions are impaired, and markedly interfered with, it is stiff, arching of the back, feet drawn together, coat erect, bowels constipated, fæces of a dark colour, often coated with blood, great tenderness across the loins and back tendons, shivering, and twitching of the muscles of the flank and face. As the disease advances constipation gives rise to relaxation of the bowels and finally to dysenteric diarrhœa, the fœces have a sickly odour and in the operation of their passing, there is inordinate straining, and it is no uncommon thing to see half a foot of the rectum displaced (everted) being intensely red in colour, colicky pains are also present

The urine is usually scanty, high coloured, and laden with

salts, milk is also scanty, the oil globules showing a tendency to aggregate.

From the eyes there is a mucous discharge, usually followed by a croupous exudate, which forms a mass of tears like gum at the inner corner or canthus—this may extend down the cheeks. The nasal discharge is of a more prevalent nature. In cows there is a discharge from the vulva, which clings in roapy strings from the lower commissure.

The general condition is one of extreme depression—ears hang, head depressed, tail relaxed, and unmistakable langour, refusal of all food, with excessive thirst. pulse rapid and weak, respiration hurried and accompanied by a peculiar moan or grunt described as a hollow grunt, the mouth becomes foul, having the same fœtid smell as the dung; in advanced cases the body also smells. there is a persistent cough, low and husky: *Emphysema*, or swelling of the tissue, under the skin, giving the body a full appearance, being the result of decomposition of the blood; death supervenes. For rinderpest there is no cure, the Veterinarians of all Veterinary Colleges have been baffled, and indeed where empiric treatment has been allowed, it has only been to increase the area of disease.

No treatment should therefore be allowed, but slaughter of all diseased, thorough disinfection and quarantine of all suspects. A stringent law, and a heavy penalty for breaking the same.

J. F. SOGA, V.S.

CONTAGIOUS FOOT-ROT IN SHEEP.

By PROFESSOR G. T. BROWN, C.B, &c.

In the *Journal* of the Royal Agricultural Society of England of June last, Professor Brown contributes an interesting and valuable article on Foot-Rot in sheep, from which we make the following extracts:—

Professor Brown says:—"In the history of sheep-husbandry foot-rot has always been referred to as a scourge of the race, causing serious losses wherever it appears, and in some parts of the world the malady assumes a degree of malignancy which entitles it to be classed among the most virulent of animal plagues.

"The different views which have been entertained as to the causes of the disease, its nature and contagious character, have apparently arisen out of a misconception of the fact that several diseases of the foot of the sheep have been described as foot-rot, most of them depending on primary injury to the hoof, leading to inflammation of the tissues within the horny covering.

"Contagious foot-rot, in the first instance, invariably exhibits itself in the skin between the claws, whence it extends to the interior of the foot, and causes the shedding of the hoof from the pressure of the fungoid growths from the secreting membrane of the internal foot."

Professor Brown then describes some of the causes which give rise to inflammation of the vascular tissues within the horny wall, ending in the formation of matter, and all the other characteristic changes which are observed in an ordinary non-contagious form of foot-rot. These are decay of the horn at the toe, cracks in the wall, or over-lapping of the lower edge of the wall of the hoof, by which sand or dirt gets into the interior of the hoof, causing inflammation und its attendant evils. Acute inflammation is also caused by thorns penetrating the hoof—(very common in this colony)—or anything capable of inflicting injury to the hoof. Neither of these forms of foot-rot is in any sense contagious.

"Contagious foot-rot can be distinguished from all forms of foot disease of the sheep with ease and certainty, and the practical man searching for signs of the affection looks at the skin between the hoofs, and seeing a little moisture or white discharge with very minute pimples covering the skin, is aware that the disease exists. Daily observation will prove that the disease of the skin sometimes advances rapidly and assumes a very marked character, the whole surface becoming covered with elongated warty growths. In most instances the inflammation extends to the inner side of the internal structures of one claw, and the hoof becomes disconnected from its membrane, which is covered with long fungoid growths, as they are called—in reality, horn fibres so rapidly produced that they are wanting in solidity. The whole product of the morbid state is, indeed, a mass of epithelial cells. When the disease runs its course unchecked, the horn of the diseased claw is loosened from the inner surface, and in a short time is entirely thrown off, and a new hoof begins to grow from the coronet downwards. If the hoof is not thrown off quickly, it grows with rapidity, and is more or less distorted in form"

Professor Brown lays stress on the statement that the characteristic signs of contagious foot-rot are most perfectly defined in the earlier stages of the disease. The changes which follow are seen in other inflammatory diseases of the foot of the sheep—also in foul of the foot of the ox, and in canker in the foot of the horse, and might lead to a mistake in diagnosis.

After describing a series of experiments which were conducted in order to decide whether foot-rot was contagious, and in what manner the contagion was communicated, he sums up the evidence as follows:—

"From these and other experiments the following conclusions may be drawn:—

"(1) So far as the evidence goes it justifies the statement that foot-rot is a contagious disease; the infective matter being active when brought in contact with the skin between the claws, or when introduced into the system by inoculation, and probably when taken in by the mouth from contaminated pastures.

"(2) That it cannot be produced by long-continued exposure to undrained moist soils with an abundant coarse and wet herbage.

"(3) That animals exposed to these conditions for many months, and resisting entirely the influences named above, contract foot-rot in from fourteen to twenty-one days on being placed among sheep suffering from the disease.

"(4) Sheep affected with foot-rot may improve, and from time to time become worse; and finally may recover and present a perfectly healthy condition of foot, notwithstanding that they have been kept the whole period under the conditions which induced the disease.

"(5) That the contagium of foot-rot remains for some time in the system (ten to twenty days and longer) without any indication of disease appearing in the skin between the claws. An infected sheep may therefore escape detection even by an expert, and may introduce foot-rot into a sound flock.

"Lastly the question arises as to the possibility of sheep contracting foot-rot by taking the infective matter into the system during feeding on an infected pasture. It must, of course, happen in a pasture on which sheep affected with foot-rot are grazing that a very large amount of infective material is distributed, and consequently taken up by all the animals feeding on the meadow; but it is not certain whether the disease can be so communicated.

"Further experiments will have to be carried into effect in order to determine the point. It will be necessary to place sheep on a pasture which had recently been fed off by sheep with diseased feet, and to protect the feet of the experimental sheep by some means so as to prevent contact with the virus.

"CURE AND PREVENTION OF FOOT-ROT.

"One important fact has stood prominently forward in the history of the experiments—*i.e.*, the spontaneous recovery from even the most advanced stages of foot-rot without any trimming of the hoof, the use of any remedial measures, or the removal of the diseased animals from the places where they were kept during the progress of the disease. Accepting