

Paper No. 22.

## VETERINARY LEGISLATION IN MADAGASCAR.

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THE Veterinary Service of Madagascar is responsible for the control of all contagious and infectious diseases affecting or likely to affect all cattle. It has to supervise the products or the skins of the animals imported, exported, or consumed on the spot; to control fairs, markets, slaughter houses, shops for the melting down of salted or smoked meats, establishments for conserves (prepared meats), workshops for the tanning of skins and hides, watch over pounds, lazarettos, isolation camps; pass the cattle and products meant for export; study all questions of hygiene and zootechy, those affecting the improvement of pastures and others referring to cattle alimentation. In short, this Department looks after everything that pertains, directly or indirectly, to the cattle industry.

All these various branches of activities of this service have brought a great many measures on the Government, measures which it would be a task to submit to a congress.

For the last few years, for statistical purposes, the Economical Bulletin of Madagascar (monthly edition) has been publishing statistics in regard to the slaughters taking place in the several towns of the island, in the workshops, as well as the imports and exports. The same periodical also publishes, quarterly, a statement of the proven epizootical diseases.

The diseases admitted as contagious in Madagascar are:—

*Anthrax* in the equine, bovine, and porcine species as well as in the ostrich.

*Tuberculosis* in the equine, bovine, ovine, caprine, porcine, and in poultry.

*Rabies* in all the species.

*Sarcoptic and demodectic scabs* in the equine, bovine, ovine, caprine, porcine, and in poultry.

*Piroplasmosis* in the equine, bovine, and canine species.

*Ulcerous lymphangitis* in the equine species.

*Bovine and porcine cysticercosis*.

*Heartwater* in the ovine species.

*Bluetongue* or a similar affection in the ovine species.

*Diphtheria* and *cholera* in poultry.

The precarious conditions of the native cattle breeding; the interested discretion of owners with regard to contagious diseases; and the great distances so difficult to traverse, all tend to faulty information, or no information at all, on a good many cases of death.

This year, identification counters anent dead animals are being distributed, as well as glass slides with instructions how to make "frottis" (a light and transparent layer of colouring matter) by the central laboratory of the service, thereby obtaining information more reliable than that of the past.

Certain diseases have never been proven in Madagascar such as: Rinderpest, pleuropneumonia, blackquarter, Maltese fever, swine fever, trypanosomiasis, horse sickness.

Which means that Madagascar is less affected by diseases than many other countries of the tropics.

Diseases in their order of importance are: Anthrax, bovine and porcine tuberculosis, rabies, cysticercosis in pigs, ulcerous lymphangitis, parasitical diseases.

#### ANTHRAX.

This disease is found almost everywhere in Madagascar, as it has been from time immemorial. The virulence of the bacteria varies with the years and with the regions. Very often it appears to prefer those animals which are healthy. The annual preventive vaccination practised for many years, and the importance of which increases from day to day, enables us to successfully fight this disease.

The vaccine is prepared at the Laboratory of Tananarivo, and delivered throughout the island during a good season. The operation is performed by the native auxilliary assistants, and is done gratis. To operate quickly and easily, a sort of park is made within which the animals are collected. It has a passage with several divisions, like the passages of a slaughter-house. This arrangement, which is easily made anywhere, enables the operator to work systematically, and obviates one animal being given two doses, while another does not receive any, as frequently happens when vaccinations are given indiscriminately.

*Sanitary Measures.*—The Bill of 1903 requests the burying of all carcasses of animals that have died from anthrax; in no case must the skin be taken off but slashed instead. The area of infection is then defined, and within it all cattle movements and sales are forbidden. In those ports through which skins are exported, these must be accompanied by a sanitary certificate from a Government Veterinary Officer.

With the development of the roads, the veterinary tuition of the native, and the more active and more intensive work of our laboratories, the fight against anthrax will become more satisfactory.

There are prepared yearly, in round numbers, a million doses of vaccine. To be precise, in 1926, there were vaccinated 1,059,580 oxen; in 1927, 783,879; in 1928, 1,730,702 in all Madagascar, and when the facilities for the preparation of vaccine is more advanced, which is the present aim, and when the number of qualified vaccinators is also sufficient, all the oxen of Madagascar will be saved.

In his report on the yearly vaccination campaign of one of the latter years, Veterinarian Geoffroy, Chief of the Service, wrote as follows:—

“Formerly, it was considered that the cheptel was losing, yearly, 80,000 oxen through anthrax. With easy and cheap vaccination, this figure is less than half what it was, and one can look forward to a near future when it will fall to zero. The public wealth of the Colony will gain by millions of francs.”

#### TUBERCULOSIS.

*Bovine Tuberculosis.*—This disease now occurs pretty well all over the island, except the extreme north. Formerly, its area of invasion was the extreme south (1906), limited by almost a straight line running from the Mangoky River to the East Coast. In 1911, it had reached a large field, invading two-thirds of Madagascar, on

the west, a little south of Cape St. Andre, and on the east, opposite the island of St. Marie. At present there are only the territories of Diego-Suarez, Ambilobe, and North Vohemar, which are immune.

Bovine tuberculosis is encouraged through lack of attention paid to his cattle by the native, and by the physiological distress which, in the dry regions of the south and south-west, visit the oxen at the end of the cool season. At this time of the year, pastures hardly exist and cattle are compelled to thrive on their reserves until the next rains.

Notwithstanding this, bovine tuberculosis in Madagascar is not incompatible with fattening; it assumes, in most cases, a chronic pace.

The lesions are generally limited to the bronchial and mediastinal lymph glands and to the lungs; more rarely they invade the pleura and the lymph glands of the thigh or the leg. Generalized tuberculosis is rare and is always accompanied by physiological distress.

*Porcine Tuberculosis.*—After the ox, the pig is the animal more afflicted by tuberculosis which is rarely generalized, more often than not remaining localized in the head (retropharyngeal, and bronchial lymph glands).

#### RABIES.

Rabies is a contagious disease which has been known in Madagascar for some time. The dogs from the bramble fields, that run all over the veld of Madagascar in a famished flock and are met in hungry legions around slaughter houses, fumigators, and manufactories, are the carriers of the rabies virus. The town dog, the house dog, that is the contaminator. In spite of all the measures tried by the Veterinary Service and the Pasteur Institute for the last 25 years, rabies runs yearly through Madagascar with exceptional severity among the natives, owing to their lack of hygiene. No doubt there are pseudorabies; the disease of the young dogs, and spiropterosis, owing to the similarity in clinical symptoms, appear like rabies, but, nevertheless, there is, in Madagascar, a strong proportion of rabies. This disease has also been noticed among other domestic species, particularly oxen bitten by the dogs from the bramble fields.

Proofs obtained at the same time by the Veterinary Service and the Pasteur Institute, permit the following conclusions to be made:—

- (1) Europeans are more liable to be bitten than the natives, because it is they who keep cats, dogs, lemuriens, etc.
- (2) Adults are more liable than children.
- (3) Men are more frequently bitten than women.
- (4) Excoriations, licked parts, slaver projections, single bites are in greater numbers.
- (5) The virulence and intensity of the disease vary according to age.
- (6) The seasoned variations are of no importance.
- (7) Some regions, like the Archipelago of Comores, are free; others (Abositra, Betroka, Antsirabe, Vakinan karatra) are exceptionally visited; while some, like Tamatave and Tananarivo, are always liable to infection.
- (8) Dogs, in the majority of cases, are the carriers of the virus.

- (9) Bites, excoriations, and licked parts are, as a rule, distributed on the hands.
- (10) Bites on the face are always of exceptional gravity, notwithstanding hasty vaccination.
- (11) Apart from all these serious cases, the Pasteur vaccination is efficacious, except in case of numerous and deep wounds or late treatment.

*Sanitary Police.*—As soon as a case of rabies or suspected rabies is known, or has been declared, the administration takes all necessary measures.

#### CYSTICERCOSIS OF THE PIG.

The presence of *Cysticercus cellulosae* in the muscles of the pig is often noticed in the slaughter houses of town and manufactories in private slaughter houses and at fairs and markets. In Madagascar, the pig is especially reared by the populations of the Centre (hovas and betsileos). The statistics of the slaughter houses on the one hand, and those of the preserved meat factories on the other, show that the proportion of pigs noticed to be infected when slaughtered is—

- at Diego-Suarez, 4 to 5 per cent.;
- at Tamatave, 10 per cent.;
- at Tananarivo, 12 to 15 per cent.;
- at Antsirabe, 12 to 20 per cent.

It is even higher in some districts of bramble fields in the high plateaux.

In the other regions, in all the southern region and the Sakalave country (Provinces of Morondava and Maintirano), pig rearing is little practised because of the islamism of their people, hence cysticercosis is unknown or only to a very small percentage. On the markets, buyers look closely at the pigs' tongues before purchasing them.

*Inspection.*—In Madagascar, a pig affected with cysticercosis, whether seriously or not, is not to be delivered for alimentation until it has been cut up in pieces weighing about one kilogramme, and boiled for three hours; this to avoid any danger to public health.

*Prophylaxy.*—Prohibition of the wandering of pigs, and the hygienic and sanitary regulations for the people outside of the towns, are likely to lessen in notable degree a disease dangerous to man, and apt to retard, to a certain extent, one of the zotechnical enterprises of a great future in Madagascar. An actual collaboration of the medical and veterinary services is at present engaged upon this interesting question.

#### ULCEROUS LYMPHANGITIS OF EQUINES.

This disease, due to the bacillus of Preisz-Nocard, is transmitted, all over the bramble field, to equines in company with oxen, by Acarian (Tiques) of the genus *Amblyomma*. This disease is especially present in the districts where horses are reared, such as Emyrne; it is also frequent in other districts as soon as horses are introduced there. It has been noticed at Diego-Suarez, Tulear, Morondava, etc.

The symptoms and the progress of this disease are those described in veterinary pathology books, and in a work on cattle and horse breeding in Madagascar by the Veterinarians Tissié and Rakoto,

which appeared a few years ago. Such cases as have been seen are always similar. The lymphangitic abscesses begin in the groin or in the breast and even in the mandible; later, they may be seen in the fetlock joint.

The treatment has consisted especially in cautery tapping and in injections of tincture of iodine; many experiments have been attempted by various veterinarians (therapeutic antisyphilitic, pyotherapy) with varying results, but it cannot be said that there has been revealed a medicine that will really cure.

In two cases, the abscess in the chest fixed with guaiacolated essence of turpentine, has given, at the beginning a temporary return to health, if not a complete cure. The autohemotherapy tried by Mr. Geoffroy appears to be efficacious in some cases.

The iodurated therapeutics has cured some horses which had affections resembling ulcerous lymphangitis; but in such cases as shown by the Veterinary Inspector-General, Mr. Carougeau, it was sporotrichosis (*Sporotrichum beurmanni*).

*Prophylaxy.*—It is more especially through tick-picking, and, better still, tick destruction through dipping, that it will be possible to successfully fight ticks. Tick-baths are now being built in some establishments of the agricultural and veterinary services, but it is only a beginning. The native will also need to be taught to bring his cattle to such tick-bath in the same way as he now brings them along for vaccination.

#### PARASITIC DISEASES.

It is but in the last few years that, through the construction of laboratories at Befanamy and Tananarive, these diseases have been studied; yet they play a preponderant rôle in malagache pathology. In this domain, everything has to be actually studied, created, done.

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#### BLACK-QUARTER AND ALLIED ANAEROBIC DISEASES IN SOUTH AFRICA.

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BLACK-QUARTER is the most common of the diseases caused by the pathogenic sporulating anaerobic bacteria which may be grouped together as gas gangrene producers. It is the only disease of this group which is of undisputed practical importance in this country.

In addition *Vibrio septique* and *B. Welchii* have been isolated. *B. oedematiens*, or any other organism of this group, has not so far been diagnosed in South Africa.

This paper is not intended to give a full account of the diseases just mentioned. Only a few remarks will be made on them according to their importance in the Union, especially where conditions may be different from those in other countries. Our local experience will be given on questions where a difference of opinion exists.

#### BLACK-QUARTER.

Black-quarter, blackleg, or quarter-evil has by the old Boers been named "sponssiekte" which means "spongy disease."