

## FOOT-AND-MOUTH DISEASE IN CATTLE

By ALFONSO RIVERA, D. V. S.

This is an acute eruptive infection exceedingly contagious and although it may be considered as a cattle disease it may also attack other animals such as pigs, horses, goats, cats, sheep and even chickens. Being disseminated throughout Europe and various parts of North, Central, and South America the disease has caused great losses. The epizootic of 1914 on the mainland, alone represented a loss of nearly \$9,000,000.

In 1924 the foot-and-mouth disease appeared in the State of Texas, but fortunately it was controlled within a short period of time by the Federal Government. At the present time there is a new outbreak in the same State which has not been controlled, and in view of the fact that Porto Rico imports a great deal of cattle from Texas the Department of Health is taking all the necessary measures to ward off propagation into this territory.

The disease is not essentially fatal. Of the milder cases only an average of three per cent or even less die, and of the acute cases the death rate is not higher than thirty or forty per cent. It is to be feared, however, because of its highly contagious character, it being necessary to put into practice measures which affect for an indefinite length of time all cattle transactions, and this brings about economic difficulties.

The period of incubation is from three to seven days. Sometimes the disease develops twenty-four hours after exposure and there are cases on record in which symptoms have not appeared until twenty-one days later.

Foot-and-mouth disease in cattle begins with fever which may rise to 106° F. The lacteal secretion and appetite diminish and within two or three days vesicles form in the mucous membrane of the mouth, especially on the surface of the tongue. Later these vesicles appear on the hoofs or around their edges and sometimes on the udder. Within two or three days the vesicles burst and the fever diminishes. One of the most marked and constant symptoms of the disease is the abundance of saliva which dribbles from the mouth. These signs are not always visible and sometimes they are so slight, especially in the older animals that the morbid state is

not perceptible and these atypical cases may bring fatal consequences as even though the symptoms are not apparent the animals transmit the disease.

The virus which causes the infection is contained in the vesicular fluid, in the slobber, in the urine and in the feces. The milk and blood are virulent but the latter is only so during the febrile period. The virus resists disinfectants and dessication very slightly. The following disinfectants destroy it in one hour: One per cent carbolic acid solution; two per cent formalin solution; three per cent soda solution; one per cent hydro-chloric acid solution. Sunlight destroys its virulence in twenty-four hours and a temperature of 100° C. does the same in a few seconds.

The disease is acquired principally through the digestive canal, the contagion being frequently caused by the direct contact of infected animals with those not infected. It may also be transmitted by means of the pasture, water, forage, peons, flies, cattle cars, etc. According to the opinion of Dieckerhoff the disease may gain entrance to the organism through the respiratory organs. Besides cattle, the porcine species show the most susceptibility to the disease, and last of all goats and sheep.

Human beings are not immune but offer a good deal of resistance to the disease. Small children become infected through raw milk and this often brings on fatal results when complicated with gastro-enteritis.

Immunity following an attack is variable. Sometimes the period of immunity is very short and it has been observed that some cases are reinfected within six weeks' time. Makoldy mentions reinfections within twelve days after the animal has recovered from the disease, and Warenessen cites the case of a cow having had foot-and-mouth disease three times in one year. The course of the disease depends on the form in which it presents itself. Mild cases usually last two or three weeks. It has been observed that while the infection is generally slight among older cattle it is almost always fatal among calves. Those milk cows which recover from the disease show a decrease in their milk output which lasts at least until the next crop season. Many of them never produce the same quantity of milk, and those cows in the state of gestation invariably abort. When the infection extends to the horns of the animal they often fall off, and if the hoofs become infected it is not at all uncommon for the animal to become lame and useless. In summer an outbreak is propagated with greater rapidity than in winter.

So far no specific treatment for combating this epizootic is known. Absolute cleanliness and disinfection of the infected parts is most important. The food should consist of a varied kind of nourishment which is easy to masticate. The method of prophylaxis has given the best and most practical results and we recommend the following measures:

1. The places where cases are found should be quarantined, and all the animals that present symptoms or have been exposed to the contagion should be killed immediately.

2. The bodies of dead animals should be burned and buried in dry places at a depth of at least six feet.

3. The infected pastures should be burned, and the stables and utensils should be thoroughly cleaned and disinfected.

4. Unexposed animals should not be allowed to even pass through infected places for three months after the eradication of the epizootic.

5. A sign denoting the presence of the disease should be placed on the stables and infected fields.

6. Employees who are liable to come into contact with infected animals should not be allowed to leave the stables or farm until all precautions have been taken to ward off contagion.

