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THE EPIZOOLOGY OF AN OUTBREAK OF ANTHRAX IN IOWA

CHARLES D. RICE

On July the twenty-first, 1923, a shipment of cows and calves from Bone Steel, South Dakota arrived in Battle Creek, Iowa. Two cows were dead in one car and were removed by the rendering plant employee; the rest of the herd were taken to The United Farms, two days later three head died and were skinned. The manager refused to allow the carcasses to be fed to the hogs.

On the twenty-eighth another shipment arrived at Battle Creek. Six head were dead, three more head died in the stockyards. They were turned over to the rendering plant. The rest of the herd, cows and their calves and some bulls, were taken to the same farms. There were about eight hundred and seventeen head, cows, calves and bulls all told. They continued to die, and the carcasses were only partially burned.

On August the third a steer on an adjoining farm showed colicky pains and died suddenly. Doctor W. H. Emphy of Battle Creek was called. He pronounced the condition anthrax and sent specimens to the Laboratories of the Purity Serum Company, Sioux City. Doctor Lumb confirmed the diagnosis. Doctor P. Malcolm, State Veterinarian at Des Moines was notified and went to the scene accompanied by Doctor S. H. McNutt of the Department of Investigation, Veterinary Division, Ames, Iowa. Doctor McNutt confirmed the diagnosis and the animals were placed in quarantine.

On August the 7th, the writer was deputized to take complete charge of the situation. On arriving at the farms it was found that twenty-nine head of bulls and cows had died and several more were nearing the end. The animals were on the bottom lands of Soldier River and the heavy rains which were falling daily covered the pastures with water and at times the river overflowed. The next day the disease appeared on an adjoining farm and on a farm three miles away in a different valley. Culture media stains and a microscope were phoned for and rushed to the outbreak in order to make quick diagnosis. Due to the heavy infection the animals in the large herd were given four times the
immunizing dose of immune serum, and the losses stopped immedi­ately. Two weeks later the spore vaccine and immune serum
were used.

On the second farm where five cows died and were properly
and immediately disposed of, no more cases occurred. On the
third farm serum alone was used and the losses ceased. On the
fourth farm a second case occurred after an interval of sixteen
days. The simultaneous method of inoculation was used with
perfect results. It was extremely interesting to observe the al­
most immediate responses of an animal to immune serum. Cows
in a stupid, staggering, dazed condition, carrying temperatures
around 107°, respirations 120-140, when injected intravenously
made rapid recoveries. Of equal interest and contrary to liter­
ature, only one suckling calf out of 425 head died of anthrax and
this calf was almost six months of age. The calves were given
no immune serum.

The most surprising of all was the enormous number of bacilli
to be found in a loopful of blood taken from the ear five to six
hours before death. The rapidity of growth at room temperature
upon Huntone's hormone agar when inoculations are made direct
from the blood stream of the live animal is almost unbelievable.
After observing day after day the fondness of the crow to feed
around the place of death of a carcass, it was found they were
feeding on the fly larvae and the writer is thoroughly convinced
they are a factor in the dissemination of the disease.

Considering the time elapsing before a diagnosis was made, the
nature of the ground, the heavy rains, the poor manner in which
the carcasses were first handled, and the number of animals in­
volved, it was fortunate to lose only sixty head of cattle and hold
the disease on four farms.

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