

Ranchers and Cattle Drives – Science



In June of 1868, a very fatal disease had broken out among cattle in Illinois. Farmers soon found that the disease was associated with longhorn cattle driven in from south Texas. What was so odd was that the Texas cattle were healthy, but any cattle allowed to mix with them or use a pasture recently used by the longhorns became ill and died.

Farmers called the disease Texas fever or Texas cattle fever because of its connection with Texas cattle.

To protect their cattle, states along the cattle trails passed quarantine laws routing cattle away from settled areas or restricting the passage of herds to the winter months, when there was less danger from Texas fever. In 1885 Kansas entirely outlawed the driving of Texas cattle across its borders. Kansas, with its central location and rail links with other, more northern markets, was crucial to the Texas cattle-trailing business. The closing of Kansas, together with restrictive legislation passed by many other states, was an important factor in ending the Texas cattle-trailing industry that had flourished for twenty years.

1. Why were the longhorns healthy and why did the other cattle become ill and die?

In 1893 Theobald Smith and Fred Lucius Kilborne of the federal Bureau of Animal Industry in Washington, D.C., announced their isolation of the pathogen of Texas fever. They demonstrated that the disease is caused by a microscopic protozoan that inhabits and destroys red blood cells.

Besides identifying the microorganism responsible for babesiosis, the name they gave to the disease, Smith and Kilborne discovered that the disease was spread by cattle ticks. After sucking blood from an infected animal, a tick would drop off into the grass and lay eggs from which would hatch young ticks

already harboring the protozoan. Weeks after the original tick dropped from its longhorn host, its progeny were still capable of infecting other cattle.

2. What is a microscopic protozoan?

There are over 200,000 protozoan species and 10,000 are parasitic and live in invertebrate and vertebrate hosts.

- Parasitic – living off of another
- Host - The animal or plant on which or in which another organism lives
- Invertebrate – has no backbone
- Vertebrate – has a backbone

3. The scientific classification for the Bovine Babesiosis that caused Texas Fever is:

Kingdom	Eukaryota
Phylum	Apicomplexa (Sporozoa)
Class	Aconoidasida
Order	Piroplasmida
Family	Babesiidae and Theileriidae
Genus	Babesia
Species	bovis bigemina <i>** species infecting humans</i> canis divergens ** jakimovi major ** microti ** ovate

4. The Babesia protozoa are in Kingdom Eukaryota. A typical eukaryote cell structure is shown in the picture below.

