EXPOSURE OF CALVES BY CONTACT IN ISOLATION PENS

Experiment 4.—Contact exposures of calves to active cases of enzootic bronchopneumonia were undertaken. A total of eight calves representing acute and chronic stages of the infection were selected from naturally occurring field cases and confined with a similar number of young healthy calves. The exposure was made in specially constructed insect-proof isolation pens *(4)* having concrete floors with slatted platforms. The floors and platforms were scrubbed each day. Acute gastroenteritis typical of early stages of the naturally occurring disease developed in these test calves within 10 days following exposure. *E. coli* was isolated from the diarrheal discharge of the test calves. The organism produced acute gastroenteritis in young healthy calves when 24-hour bouillon cultures were given as a drench. Although diarrhea typical of early stages of the disease developed in the calves thus exposed by contact, typical enzootic bronchopneumonia similar to that observed under field conditions did not develop.

It was concluded that *E. coli* was instrumental in producing symptoms characteristic of the early stages of enzootic bronchopneumonia but that additional factors were necessary for the successful transmission of the chronic form of the disease.

EXPOSURE OF CALVES BY CONTACT WITH CONTAMINATED SOIL

Experiment 5.—Failure to transmit enzootic bronchopneumonia by exposure methods described above suggested the possibility that the necessary predisposing factors influencing susceptibility of calves to this trouble would be found associated with environment incident to crowded insanitary permanent calf lots. Heavy gastrointestinal parasitic infestations occurring in affected herds under natural conditions further strengthened this suspicion. To test this point a plot of ground containing a heavy sod of grass was fenced for purposes of confining diseased animals with healthy individuals. Calves affected with early stages of bronchopneumonia and yearlings in a state of chronic infection were confined on the plot at irregular intervals. The animals were removed as necessary to prevent killing the grass. Droppings of the diseased animals were allowed to remain on the soil. When it became necessary to remove the animals to prevent killing the grass by overstocking, the feces of the dis-