

NATURE OF THE PREVENTIVE EXPERIMENTS.

As previously indicated the object of the major experiments was to determine the value of a vaccine in preventing the disease Joint-ill.

METHOD OF CARRYING OUT EXPERIMENT.—The following method was adopted in order to secure sufficient material, so that the results, when obtained, might be conclusive.

Arrangements were made whereby five veterinary surgeons, in a similar number of districts, were to inoculate, as far as possible, all the foals dropped in their respective territories. The veterinary surgeon was remunerated for this work at the rate of one dollar per head. The farmer received the treatment absolutely free. The treatment had to be administered to the foal within twenty-four hours after birth. The latter demand was made because infection may so easily be implanted during the first few days of life. In almost all cases these conditions were consistently carried out.

The experimental districts had for many years suffered considerably from the ravages of Joint-ill. They were, therefore, very suitable for the carrying out of such an experiment. Through the energies of the veterinary surgeons this scheme was made widely known to the farmers. Some of those who had suffered no loss from this disease were loath to have their animals "experimented with." However, little difficulty was experienced in convincing the majority of the stock men that the material used was not only harmless but definitely beneficial. A record of all inoculations was kept by the veterinary surgeon and forwarded to me at regular intervals. A copy of the record sheet will be found in the appendix.

Instructions were given to the veterinarians to inoculate only those foals that were apparently in normal health. The temperature was a useful guide in determining the condition of the animal. When either subnormal or above normal the vaccine was withheld. These clinical observations saved the reputation of the vaccine on several occasions. Had they been more carefully followed the few disasters which did occur might have been avoided. At the time of inoculation a few general instructions as to the care of the foal were given to the owner.

NATURE OF VACCINE EMPLOYED.—The vaccine used would be designated technically as, a polyvalent mixed infection vaccine (bacterin). Two kinds of vaccine were employed, the one containing Streptococci, *Staphylococcus Aureus*, and *B.Coli*, the other containing in addition the *Bacillus* of Equine Abortion. This latter was used exclusively in territories infected with abortion.

Six strains of streptococci were used, all having been isolated from diseased joints, where in most cases they had been present in pure culture. Due to artificial cultivation these strains had lost some of their virulence. This was shown by their reduced pathogenicity for rabbits. When isolated an intraperitoneal injection of about one-eighth of a blood agar slant will kill a full-grown rabbit in about twenty-six hours. It is generally considered that in immunizing, better results are obtained by the use of virulent in preference to avirulent strains of streptococci. As the method employed in raising the virulence and growing the vaccine was original in a few details, I will record it briefly.

From the stock cultures blood streaked agar slants were made, and incubated for about twenty-four hours. The growth was then washed off in 4c.c. of saline, one-half this quantity was injected into the peritoneal cavity of a rabbit. The first animals injected with the different strains frequently survived the infection for three or four days, and at post-mortem did not show the characteristic changes