

CONTAGIOUS PLEURO-PNEUMONIA OF CATTLE.

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PLEURO-PNEUMONIA is a disease of the lungs of cattle caused by a very minute organism, which, like the virus of foot-and-mouth disease, is a filter-passer. The disease was known and described as early as 1765, and since 1794 has been recognized as of a particularly contagious nature. Several commissions have made a study of the disease, which caused great loss on the Continent during its spread from Switzerland to all neighbouring States. In 1839 it passed from Holland by means of imported cattle to Ireland, and a few years later to England and the lowlands of Scotland. The United States of America also became infected from the purchase of a ship's cow as early as 1843. Later still Australia and South Africa became affected. The United States and Great Britain were able finally to eradicate the disease by slaughter of herds showing affected animals, and the trouble is now confined to Russia, Spain, Africa, Asia, and Australia. New Zealand and Tasmania, thanks to early good fortune and later to rigid quarantine arrangements, have always been free from the disease.

THE CAUSATIVE ORGANISM.

The organism causing pleuro-pneumonia is just visible with the aid of the highest power of the ultra microscope as a highly refractile spot, and until recently the exact shape was not known. However, by a special high-power photographic apparatus where exposures were made in ultra violet rays, the organism has now been found to resemble a yeast in shape and method of propagation. It has recognizable staining affinities, and was first cultivated in 1897 on artificial media by Nocard and Roux, who placed some of the lung exudate into broth in a collodion capsule and introduced the capsule into the peritoneal cavity of a rabbit. In twenty days the rabbit was killed and the broth found to be cloudy with a growth of the organism. Later this organism was cultivated in the incubator at blood-heat on solid media, and also in liquid media containing serum in a certain percentage (8 per cent.). After the liquid media had been sown, to ensure that no contaminating organisms would be found present, the whole was run through a porcelain filter. For culture purposes the organism is found pure in the lung or pleural exudate. Heat easily destroys the organism (58° C. for one hour), and cultures are found dead after one month. In ideal circumstances virulence may be retained for ten months. The lymph is attenuated considerably by air and light in three weeks, and heating at 55° C. greatly modifies the action of the organism when injected into an animal.

TRANSMISSION OF THE DISEASE.

It has been proved by experiment and careful watchfulness in the field that transmission is only by animal contact. One animal must breathe moisture and virus-laden atmosphere expired by an affected beast at a distance of, at most, only a few feet. Consequently the