

Micro-Organisms and Disease

By J. E. Simmons, B.S. in Agr.

ALL diseases may be divided into two great classes or groups: the organic or physiological diseases due to weakness or improper working of some organ of the body, and the communicable diseases which are due to the invasion of the body by some micro-organism, whose growth causes the production of harmful products in the system. A communicable disease may be spread from one individual to another by the causal organism. Such is not the case with the organic diseases. Communicable diseases might also be called preventative ones because the prevention of their spread can be accomplished by stopping the transmission of the organism. The knowledge of the transmission of some of the common animal diseases is so well known and complete that if the farmers and stockmen could only be induced to put that knowledge into practice, some of our most common diseases would be exterminated in a few years. The knowledge of some other transmissible disease is not sufficiently worked out to prevent their spread; however, they can be controlled to a certain extent by precautionary steps. Such diseases as tuberculosis, anthrax and contagious abortion bring enormous losses to the farmers yearly and since the prevention of disease rests entirely with the farmer, rather than the professional man, it is he who should know the fundamental facts concerned with the transmission of disease among the domestic animals.

In order to produce a disease in an animal, the organism must enter the tissues, grow there and produce by-products which exert a toxic or poisonous effect upon the system. This

series of changes is known as infection. The severity of an attack of any communicable disease depends upon several factors or conditions. One of the most important factors is the condition of the host. If the host is run down in health due to fatigue, hunger, thirst, age or disease, the resistance offered is less and the virulence of the organisms is somewhat increased.

The organisms may enter the body from several different avenues, and many of the common organisms have definite specific methods by which they enter the body. The anthrax bacillus, for example, usually enters the body through wounds, either on the outer surface of the body or through abrasions in the mucous membranes of the throat and intestines. Tuberculosis, on the other hand, enters the body by wounds, by ingestion or by inhalation.

The micro-organisms may enter the body of the host and develop for a period but are soon overcome by the body. At a later period the organisms again invade the body and become very virulent, due to the fact that the first attack lowered the vitality and resistance of the body.

Micro-organisms produce poisonous substances in the body of the host, called toxins. These toxins are, in nearly all cases, deadly poisonous. The disease caused by a certain organism usually attacks the same tissues or parts of the body and it is this place of attack which can be used for correct diagnosis. Tetanus, for instance, attacks only the jaws, while anthrax invades the entire body. These evidences of the presence of the disease are not shown until some time after the