

pulverised sputum is the general infecting material is largely theory. It is supported by very little experimental evidence, and no exact clinical evidence that I am aware of. Do not understand me to say that I disbelieve these teachings, for I do not; but I protest that Koch and those who follow him in disregarding the importance of bovine tuberculosis in relation to the human disease set up a standard of accuracy for their scientific opponents which they themselves do not honour.

PRIMARY INTESTINAL TUBERCULOSIS. Those who doubt that tuberculous food products play any considerable part in the causation of human tuberculosis base their opinion mainly on the alleged rarity of primary intestinal tuberculosis. Koch says, "that a case of tuberculosis has been caused by aliments can be assumed with certainty only when the intestine suffers first, that is, when a so-called primary tuberculosis of the intestine is found." It requires but little thought to see how misleading this statement is. It leaves out of consideration infection through the tonsils and upper digestive tract, and recent experimental work proves that no such dogmatic statement can be made.

PASSAGE OF TUBERCLE BACILLUS THROUGH HEALTHY INTESTINE. As long ago as 1890, Dobrokionski, working under Cornil, showed that the tubercle bacillus can penetrate the wall of the intestine of some animals without causing any demonstrable lesion, and that it does not require long to do so.

The late Prof. Nocard observed that if he drew blood from horses at certain periods of digestion, the serum would become contaminated even if divided into small lots of 100 c.c. On the other hand if the bleeding was done during fasting, the serum would be preserved in litre flasks without loss. In seeking an explanation of this phenomenon, two of his students, Desoubry and Porcher, found that the chyle of dogs fed with soup containing considerable fat showed many colonies of bacteria when plated. When a plain bouillon without grease was given, the chyle was free from bacteria. Nicolas and Descos have shown that practically the same thing holds true for the tubercle bacillus when ingested with fat. During the winter of 1902-1903, I made similar experiments at the laboratory of the State Live Stock Sanitary Board of Pennsylvania. The method was as follows:—After keeping a dog under observation for some days to make sure that it was healthy, a purge of castor oil was given in order to rid the intestine of any substance which might injure the mucous membrane mechanically. At the end of this time a single meal consisting of equal parts of warm water and melted butter made into an emulsion, into which