

has been proved by a large number of observations in both Europe and America. Koch says, "They must be regarded as identical diseases on account of the identity of the parasites to which they are due." The disease has been communicated from phthisical patients to animals, by inoculation, by ingestion, and by inhalation, by numerous experimenters; and their conclusions verified by proofs which one can hardly doubt. On the other hand the communicability from animals to man, cannot be verified by intentional experiments, but clinical observation and reasoning warrant the conclusion that the infection of man by the meat and milk of tuberculous animals is possible and probable.

Fleming, the principal veterinary surgeon of the British army, and whom I mentioned before, wrote in 1874, (before the discovery of the agent of infection):

"From what has been already ascertained there is every reason to view with grave suspicion the use of the flesh of phthisical cattle as food, especially if the disease is much advanced and the tissues are generally involved. But with more reason the milk from cows affected with tuberculosis should be prohibited, more particularly for the use of infants, who mainly rely upon milk for sustenance and whose powers of absorption are very active. Even if such milk did not possess such dangerous infective properties, the deficiency in nitrogenous matters, and in fat and sugar, and the increased proportion of earthy salts would alone render it objectionable as an article of diet. It has long been known that it was liable to produce diarrhoea and debility in infants, but though many children fed on such milk may have died from general or localised tuberculosis, the part probably played by this fluid in its production has not been suspected." In 1885, Dr. Mason, of Hull, England, medical officer of health, expressed his opinion, formed from actual observation of the results which follow on the use of milk from tuberculous cows. He visited a dairy in company with a veterinary surgeon and found a diseased cow which, on a post-mortem examination, exhibited proof of tuberculous condition. This cow's milk had been sold for food, and doubtless, in a limited time, its flesh would have been sold also. He states that the disease is infectious, hereditary and transmissible to the human species.—See *Lancet*, Oct. 31st, 1885, page 819.

Professor Walley, Principal of the Edinburgh Veterinary College, in February of *this* year, read a paper before the medical society there, in which he says: "It is the most important of all the subjects connected with comparative pathology, and one which has been most strangely neglected and most severely ignored by the great bulk of the profession in this country, it being the elucidation of a problem which has a more important bearing on the health of the human race than has any other problem at present claiming the attention of the profession. In spite of all attempts in the past to minimize the importance of animal consumption in its relation to the human race, the fact still remains that in every essential

particular the tuberculosis of man, and the tuberculosis of animals are identical," and also he says, "As to the use of milk, from animals in which tubercle is suspected to exist, no two opinions can be held; its deleterious effect even when exposed to a tolerable degree of heat has been abundantly proved."

Dr. Albert John, of Dresden, says, "The milk from tubercular cows is to be considered of unquestionable infectious character."

Dr. F. S. Billings, of the Bacteriological Laboratory, Nebraska, says, "This question of the specific infection of milk from tuberculous cows is no trifling matter, on the contrary it is one of life and death."

Now I do not propose to go into the evidence of the existence of the disease in cattle; of that there is abundant proof as I have said before. But I wish to draw attention to what is going on right in our neighbourhood. Early in 1886, Dr. Bailey, secretary to the Board of Commissioners for Maine, on contagious diseases of animals, was called to inspect the college herd at Orono, numbering 51 head, and came to the conclusion that many were suffering from tuberculosis. After examination and consultation with Dr. Michener, detailed by the general government at Washington, the condemnation and destruction of the whole herd was resolved on and carried out. Many of these animals were considered very fine, being choice breeds kept at the State Agricultural College and of great value; consequently their destruction a great loss. The autopsies made before the authorities, state officials, and prominent physicians, revealed unmistakable evidence of tubercle. Investigation showed that this was not a sudden outbreak, but that as far back as 1876 cases of the disease were known. Notwithstanding these facts it is not supposed that the disease is wide-spread in the State, but the existence at different points reveals great danger. A suspicious circumstance is, that in countries when statistics show that phthisis is very prevalent, there—also—tubercle is more common in cattle.

The symptoms of tubercle in cattle or phthisis, are thus graphically described by Dr. Bailey. "In its early stages they are sometimes involved in more or less obscurity. Prominent among these are unthriftiness with a diminished or capricious appetite. The animals are easily fatigued and have a weak and hoarse cough, the skin is sensitive and dry, the coating staring, the mucous membranes are pale, the digestive organs weak and prone to tympanites. There is increase of temperature, with a variable pulse. The milk is deteriorated in quality, being blue and watery and contains a large proportion of alkaline salts, but is less rich in nitrogenous elements."

From the pearly, shiny appearance of the tuberculous growths, it has been known, in Germany and some other countries, as the "Pearl disease." These pearl-like bodies do not caseate and disintegrate as such deposits do in man, but usually calcify and form large tumours. They affect the pleuræ, pericardium, peritoneum, and membranes generally rather than