

42. Possibly this predilection for the lungs, spleen, joints, &c., is dependent upon the rate of the circulation in those parts, the tubercle bacillus certainly appearing to grow best where the circulation is least vigorous.

43. The distribution of the disease and the bacilli in the body closely affects the question of the use of tubercular meat as food.

44. It appears that the marrow of the bones is affected at an early period, and that the bacilli may be present therein in considerable quantity before they discover themselves by changes obvious to the eye.

45. Evidence also has been laid before us to show that, although rarely, the disease may affect the flesh, and that the ordinary methods of cooking are often insufficient to destroy the bacilli buried in the interior of the limbs.

46. Further, although the bacilli may be found but rarely in the flesh, still the chance of their being present either there or in the blood is too probable to ever allow of the flesh of a tubercular animal being used for food under any circumstances, either for man or the lower animals.

47. The tubercles or inflammatory patches produced by the bacilli in their growth in the tissues differ rather according to their seat, and the acuteness of the disease.

48. If the malady is very acute and generalised in its course, the organs will be found riddled with small greyish knots, varying in size from one twenty-fifth of an inch (dust shot) upwards.

49. If the disease is more chronic, these small tubercles coalesce, the centres of the conjoint patches thus formed become degenerated into cheesy masses, while the outer border becomes hard, tough, and fibroid. This rough fibrous tissue of the tubercular nodule is well seen in the grapelike nodules of the pleural tubercles in cattle. Finally, the cheesy matter may become stony-hard from the deposit of lime salts within it. This occurs when, owing to the death of the bacilli, &c., the disease ceases to spread at that point, and the tubercle shrivels into a calcified mass surrounded by a sheath of dense fibrous tissue. Such remains of tubercles are, on *post-mortem* examination, not infrequently found coupled with more recent lesions in animals previously supposed to be healthy.

50. The secretions from the organs thus diseased contain the tubercle bacilli, and are consequently infective in proportion to the activity of the malady. Such secretions are the mucus from the air, alimentary and genito-urinary passages, the saliva, milk, urine, &c.

51. Of these, it is obvious that the fact of milk being infected is of primary importance to the health both of animals and of men, since milk has been proved both to contain the bacilli and to infect the lower animals, *e.g.*, calves, pigs, &c., while, unfortunately, it is becoming abundantly clear that by the same method of transmission of the virus, the disease is communicated to the human being.

52. The general symptoms produced by tuberculosis are, when the disease is general, fairly easy of recognition, early malaise commencing, and emaciation preceding the occurrence of the other prominent systems, such as a dry cough, &c.

53. When, however, the affection commences locally and remains for weeks, or it may be months, very slowly growing, and so producing the hard fibroid nodules before referred to, no symptoms may be manifest to a casual observer at all—in fact, the animal may be considered to be in a singularly fine condition.

54. Ultimately, however, in all cases, if the malady has the opportunity of developing further (*i.e.*, where the animal has not been killed in a well-nourished condition at the commencement of the disease), the emaciation becomes very marked; the milk, previously abundant though poor in quality, becomes still poorer, and also diminished in quantity. The weakness increasing with the wasting, there is distress on exertion, the cough and laboured breathing indicating the degree in which the lungs are affected, and physical examination of the chest—*i.e.*, by percussion and auscultation—revealing their solidification and the pleuritic adhesions.

55. The disease in the lower animals always terminates fatally.

Frequency of Proportionate Occurrence among Animals and Men.

56. Now that the unity of the various processes which the tubercular bacillus sets up is known, it should be clearly understood that it has been calculated from the statistics of the registrars of various countries that to this poison alone are due from 10 to 14 per cent. of all deaths among human beings.

57. In certain instances even this number seems to have been exceeded, as in Paisley, where it is 17·5 per cent.

58. Its proportionate occurrence among animals has not been so clearly made out.

59. It appears to be certain that it is more prevalent in some parts of the country than in others, notably so in Ireland, and especially in Dublin, while it is much more common among milking cows than other kinds of stock. In Dublin the percentage of animals discovered to be affected with the disease in the course of application of the recent Slaughter Act was 4·9 per cent. In some exceptional cases the percentage is still higher, in others lower. In Germany the proportion of tubercular disease among cattle slaughtered appears to vary from 1·5 per cent. to 20 per cent. according to the district.

60. On analysis it will be found that, as an almost invariable rule, the low percentages given are those for herds fed in the open air most of the year, the high death-rates being among dairy cattle cohabiting in sheds.

61. The relative frequency with which the disease appears among fowls seems to be not generally known, except to veterinary surgeons of large cities. Both from direct experiment and from clinical observation it is now proved, not only that the fowl contracts the disease from man by reason of its swallowing the expectorated bacilli, but also that it thereby forms a vehicle for the further transmission of the disease to man and the lower animals.

62. The widespread injury and loss it thus inflicts calls for legislative interference, which we will now proceed to consider.