

these damaged tissues must be prepared for the tubercle bacillus before it can work its dire effects. During the course of my work my hands have for weeks, months, or even years, been almost daily soiled with tubercle bacilli; I have no doubt that I have swallowed many, and that some have made their way into my respiratory tract; but none of these has done me much, if any, harm because whilst I have been working with them I have carefully protected any cuts on my hands and have refrained from working when I have been run down in any way, and especially when I have been suffering from any catarrhal processes in the respiratory or alimentary tracts.

From my experiments on animals I am satisfied, as are all experimenters, that tuberculosis is never produced without the presence and action of the tubercle bacillus, but my own observations on human patients especially on children, confirm those of many others, that unless the tissues are weakened or damaged—*i. e.*, the soil is prepared—there can be no reaction between the bacillus and the tissues which can end in the production of a tuberculous lesion. The exciting cause must be present, but in the human subject at any rate there must also be one or more predisposing causes. In the lung this predisposing cause appears to be catarrh; that is, a congestion of the vessels of the mucous membrane, accompanied by some slight proliferation of the epithelial cells lining the air vesicles, with an increased pouring out of fluid and an emigration of a larger number of white blood-cells. In the air vesicles of the lung, especially when expansion and contraction are weak or imperfect,—*i. e.*, at the pulmonary apices in adults, near the root of the lung in children (and in monkeys), beneath areas of adhesion between the pulmonary and costal pleuræ, and at the base of the lung when there is adhesion of the pleuræ in this position, especially if the liver be adherent to the under surface of the diaphragm, there is usually an accumulation of catarrhal products in which if bacilli gain entrance and are allowed, undisturbed by any great amount of movement, to multiply, to produce their special products, and to cause those degenerative changes with which they are found to be associated casually. Once give them a footing under these conditions, and they are in a favourable position to produce tuberculosis.

It is evident from what has already been said that the tubercle bacillus may reach the lungs by way of the air-passages; that they make their way to those points at which there is least movement and in which, as a rule, there is some degree of collapse, often associated with a condition of catarrh—*i. e.*, a condition in which the protecting layer of epithelium has been damaged, the lung tissue then being in the same position as the hand on which the epithelium has been damaged. From