

cessful. In this way the causative agency of the organism was demonstrated. Consumption was therefore proved to be an infectious disease, caused by a particular parasitic micro-organism, and thereby communicable. Koch called this parasite the bacillus tuberculosis. Dr. Flint in the last edition of his "Treatise on the Principles and Practice of Medicine," published in 1834, reconciles Koch's doctrine with the views current up to 1882 as to the origin of consumption. He writes as follows: "This discovery which ascribed a local origin to consumption naturally caused many to ask how it could be reconciled with the existence of a hereditary tendency and with the agency of various causes which as experience shows, exert their effects in some way through the constitution. The parasitic doctrine does not disprove facts which render certain the existence of a consumptive predisposition. This predisposition involves certain local conditions on the concurrence of which the development of the disease depends, not less than on the presence of the bacillus tuberculosis. For growth and multiplication the parasite must have suitable soil. The suitable soil consists of the concurrent local conditions on which the development of the disease depends. We know from observation that this predisposition to consumption may be either congenital, inherited or acquired, and that confinement within doors, a damp atmosphere, depressing emotions, etc., cause consumption by bringing on this predisposition, which requires in addition the presence of the specific cause, namely, the bacillus tuberculosis."

Further on he says: "The bacilli of tubercle in most cases of pulmonary phthisis doubtless have gained entrance into the lungs by means of the inspired air. The parasite is contained in the sputa of phthisical patients, and is not destroyed by desiccation. From this source and from the expired breath of those affected with the phthisis, the atmosphere derives it."

Parkes' statement, therefore, that confinement to close, badly ventilated rooms, and a damp atmosphere, are causes of consumption, may be accepted in the sense that they are the two principal concurrent circumstances, which tend to bring on a predisposition to the disease. Flint's statement that the bacilli are communicated to the atmosphere from the expired breath of patients affected with the disease, as well as from their sputa cannot,

in the light of recent discoveries, be any longer considered correct.

I shall now proceed to lay before you the discoveries of Messrs. Cadeat and Mallet, two distinguished scientists of Paris, who have recently proved by experiment the methods by which the seeds of consumption are most readily propagated.

"It is a matter of common observation now-a-days that a healthy person, co-habiting with a consumptive patient, is in danger of contracting phthisis. It has been very clearly shown that this does not result from the intervention of expired air. We have, in fact, proved long ago that the air expired by animals infected with charbon, glanders or tuberculosis, never contains the germs of these diseases. Now-a-days contamination with phthisis is attributed (1) to the transmission of infectious sputum in impalpable dust which is scattered through the air in the act of sweeping rooms, (2) to the introduction of these sputa into the air passages, which are regarded as the highway by which phthisis enters the body. In order to form an opinion on the degree of receptivity of the air passages for the bacilli tuberculosis, and more particularly to measure the extent of the dangers which result from the inhalation of the dust of dried tuberculous matter, we have instituted a certain number of experiments performed under varied conditions. We have discovered that the air passages are very favorable to the development of tuberculosis when the bacilli, which have penetrated into their interior, are carried there by distilled water or inert liquids. These bacilli, on the contrary, when mixed with dust took root with great difficulty and rarely in the air passages of healthy persons. We have looked for the cause of these differences. In fact, in order to introduce the bacilli tuberculosis, we have (1) caused the inhalation of tuberculous dust held in suspension in the atmosphere, by continual agitation of the air. (2) We have atomized tuberculous liquids in boxes containing rabbits. (3) We have injected tuberculous virus into the trachea. By the first experiment, inhalation of tuberculous dust, out of forty-six animals only twelve developed tuberculosis. By the second experiment, atomization of tuberculous liquids, we have seen tuberculosis develop in all the animals. By the third procedure (injections of tuberculous liquids into the trachea), our animals all became rapidly tuberculous."