

ception of germs emanating from them. Soil and water have no connection with them, air alone may possibly favor their propagation. 1. The *Bacillus tuberculosis* (of R. Koch, 1892). Little bars with production of sporules, and in sputa. On account of the form in which it is persistent, efficient for months and endowed with a great power of resistance; without spontaneous motion. The mode of introduction is produced by inheritance or through the lungs, the intestines (milk and sputa). Through wounds, as in oculative tuberculosis. 2. *Scarlatina* and *Morbilli*. Measles: a *Diplococci*? *Scarlatina*: Klein's *Bacillus*? Mode of introduction, epidermis and mucus membrane. 3. *Bacilli diphtheria* (Loeffler, Kleb.). Mode of introduction, through oral and laryngeal cavity. *Bacillus syphilis* and others are mentioned.

(B.) *Ectogenous Bacteria*.—These are facultative parasites, their growth takes place in the human body and also on lifeless substratum, their transmission is consequently of a more manifold type, from man to man, through soil, water, air, aliments and inanimate objects. 4. *Anthrax Bacillus*. Pollender, Rayer, Davaine 1863, Koch. With resistant sporules which are developed outside of the human body. Introduced through injured skin, through the lungs, through the intestinal tract (by means of sporules). 5. *Bacillus typhoid*: Eberth, Koch, Gaffky (1884). Facultative parasite, probably with sporulation; retaining its vitality for more than three months. Mode of introduction, through the mouth. 6. *Traumatic infectious diseases*, *Bacillus pyocyaneus* and others, including *erysipelas*. Mode of introduction through wounds and natural apertures of the outer skin. 7. *Bacillus tetanus*: Mode of introduction through wounds of the skin. 8. *Cholera*.—*Comma bacillus* of Koch. Not very resistant, decaying at 50° and by desiccation. Introduced through mouth and intestinal tract.

In Koch's bacteriological course in Berlin for medical men, it appears they start with non-pathogenic organisms, such as the mould and yeast—white, black and

rose. The cultivations are all chiefly on gelatine and sliced potato. They pass from these ordinary forms of micro-organisms to the parasitic organisms, the greater number of which accompany specific diseases. The first of these was examined, says Dr. Sibley, writing to the *British Medical Journal*, was the *bacillus anthracis*: we proved how this *bacillus* grows at the ordinary room temperature, but never in acid mediums. It does not spore in the animal body, nor under a temperature of 16° C. or over 37° C.; it does not spore in gelatine, but on potato, or when grown in broth. Growing artificially, it forms long interlacing filaments. When inoculated, it causes splenic fever and rapid death in guinea-pigs, mice, and man. It was demonstrated that animals fed on the *bacilli* without spores received no harm.

The *bacillus tuberculosis* is difficult to cultivate, as it grows only on agar-agar when glycerine is added and on serum, and only between the temperatures of 30° and 42° C., and then very slowly. The characteristic point about the method of tubercle is that it grows and extends over the fluid at the bottom of the test tube and then up the glass on the opposite side, thus differing from any other known *bacillus* culture; spore formation of this *bacillus* has never been actually demonstrated.

The *bacillus* of glanders, pathogenic in horses, asses, man, guinea-pigs and field mice (not in other mice), producing generally catarrh of the mucous membranes and nodules in the lungs very like tubercle; the *bacilli* also closely resembles tubercle *bacilli*. It does not grow at room temperature, but on agar-agar or potato in the incubator.

The *cholera* or *comma bacilli* are readily destroyed by drying; thus if a drop of broth containing them on a cover glass be dried in the air, they are found all dead in about three hours. Hence *Cholera* should be easily prevented.

The *bacilli* of typhoid fever, found abundantly in the spleen, lymphatic glands and intestines of patients dying from the disease, are very active, and no