

fact, seemingly, consume enough oxygen to utilize the digested products of a generous or full diet, especially that containing much carbonaceous matter. They had, consequently, no natural desire for more than a small or moderate quantity of food. But few of them, as we find, suffered from indigestion; they could, for the most part, readily digest all the system could utilize with its small respiratory capacity—all there was a natural inclination for. It is frequently the case that persons predisposed in this way to pulmonary consumption have a desire for and will digest very indigestible foods, such as pastry and hot bread."

#### RECENT RESEARCHES ON THE MICRO-ORGANISMS OF DIPHTHERIA.

BY DR. FRIEDRICH LOEFFLER. EXTRACTS FROM REPORTS OF THE IMPERIAL BOARD OF HEALTH OF GERMANY.

Nearly sixty years have passed since Bretonneau published his classical treatise on diphtheria, yet notwithstanding the efforts of the long series of workers who have followed in his footsteps, the true ætiology of diphtheria has never yet been satisfactorily established. The varied circumstances under which the disease has been observed, have led to a variety of views upon the subject. Perhaps in one point only is there any complete agreement, and that is, its infectiveness. The analogy of other infective diseases, in which a definite micro-organism has been discovered, naturally points to the probability of a similar discovery in diphtheria, and the researches of many observers have been concentrated directly upon this one point in the ætiology.

Dr. Loeffler prefaces the account of his own experiments by a concise summary of the work done by his predecessors in the same field. One of the most important observations which has of late years aided the elucidation of the problem, was published by Dr. Heubner during 1881.

Following the line of experiment opened up by Oertel, Weigert and others, Heubner succeeded in producing false membranes upon mucous surfaces by means of mechanically modifying the circulation in the blood-vessels supplying the part. He then injected portions of true diphtheritic membrane into the general circulation, and found that some form of poison became concentrated in these artificially produced membranes, rendering them capable of re-infecting healthy animals with a genuine diphtheria. The general outcome of his work appeared to be, that the local affection was most probably the starting-point of the disease and the seat of the development of the poison. Arguing by analogy, therefore, it must be assumed (1) that certain typical organisms must be present in the affected spots; (2) that these organisms must be capable of isolation and re-cultivation; and (3) that the disease must be reproducible from these cultivations. Heubner, however, failed to prove the constant presence of any definite micro-organism other than the very numerous micrococci which, according to his theory, ought to be found within the blood-vessels leading to the affected spots. Klebs, on the contrary, found a definite bacillus somewhat smaller than that of tubercle in the upper layer of the diphtheritic membrane in all the cases which he examined.

Dr. Loeffler gives his own experience in detail, particulars of each individual experiment being recorded, the method of staining employed, &c.

Summing up the results of his observations, he states his conviction that the whole process is one of necrosis, due to the ingrowth of the micrococci, and that the presence of so many other forms of micro-organisms is simply due to the fact that the decomposing tissue forms an excellent soil for the development of any kind of organism that may find its way into the air passages.

Two distinct varieties, however, are