

peculiar morphology and definite biological characteristics, which, when isolated in pure culture retains the property of reproducing in certain animals conditions that are pathologically identical with those seen in the human being from which it was originally obtained. This organism is present in the false membranes of all cases of true diphtheria, and is absent from inflammatory conditions of a non-diphtheritic nature. Its presence is, therefore, diagnostic of diphtheria, and in certain places this alone is accepted as unquestionable evidence of the existence of the disease.

With the discovery of this organism and the establishment of its relation to genuine diphtheria, the question involving the identity of diphtheria and allied pseudo-membranous processes, particularly membranous croup, so-called, began to be answered, and at present the number of those who still believe in the existence of a fibrinous laryngitis distinct from diphtheria is indeed small. There are still some, however, who adhere to the opinion that a non-contagious fibrinous laryngitis occasionally occurs, but unfortunately for this view, it is usually supported by clinical evidence alone, and has rarely, if at all, been formulated from the results of bacteriological study of these cases. The evidence at hand is too small in amount to justify the positive denial of their existence, but the few opportunities that have been embraced for the study of these affections by bacteriological methods have demonstrated them to be of a diphtheritic nature.

By similar methods of investigation a great deal has been learned as to the nature of the pseudo fibrinous anginas that accompany scarlet fever and measles. While it is well known that diphtheria may be, and often is, engrafted upon scarlet fever and measles, yet it should not be inferred that the exudation in the pharynx in these diseases is always of a diphtheritic nature. On the contrary, under ordinary circumstances, these anginas are neither clinically, anatomically, nor etiologically identical with the apparently similar exudate in the throat of the diphtheritic patient. They are not due to the activity of the same micro-organism that causes diphtheria, but are most commonly the result of the presence in the tissues of a strepto-coccus, closely allied to that concerned in the production of phlegmonous inflammations. Upon these points Booker, who has devoted a great deal of attention to the subject, and whose contribution is most trustworthy, writes as follows: "Pseudo-membranous affections of the throat occur secondary to scarlatina, measles, and, perhaps, other infectious diseases, which often give the clinical features of diphtheria, but which differ from the disease in nature and etiology.

The clinical features are not sufficiently distinctive in all cases to differentiate these affections from diphtheria. The anatomical changes in the body resulting from the effects of the bacillus diphtheriæ appear to be characteristic. A like careful study has not been made of the anatomical changes resulting from pseudo-diphtheritic processes, but so far as this study has been made, it may be safe to consider the anatomical changes as entirely distinct from those of diphtheria.

The anatomical changes, save the pseudo-membrane, resulting from the effects of the bacillus diphtheriæ, are not occasioned by the direct action of the bacilli, which do not invade the body, but by a toxic substance produced by the bacilli. These changes are characterized by local necrosis of the tissues, with peculiar splitting of nuclei of cells.

"The anatomical changes resulting from scarlatinal diphtheria are accompanied with an invasion of the body by strepto-cocci, and are largely suppurative processes which appear to be the direct effect of these organisms . . . The constant occurrence of strepto-cocci in pseudo-diphtheritic processes, and in numbers proportionate to the