## ON THE IDENTITY OF MEMBRANOUS CROUP AND DIPHTHERIA.*

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Mr. President and Gentlemen,—The paper which I desire to read before you to-day was written with the object of bringing together some of the arguments and evidence which at present exist to prove the identity of the diseases croup and diphtheria. The subject is one which has seemed to me of considerable importance to the profession, owing to the large number of cases which occur every year in this country, and the great mortality therefrom. Up to the time of the epidemic of diphtheria in England, in 1858, the term "croup" (by which I mean only true or membranous croup, and not the varieties of false, catarrhal, or spurious croup) was used to designate an acute, non-contagious inflammation of the larynx, attended with a membraniform exudation of lymph. Since that time, however, much deep investigation has induced many to regard these cases as isolated examples of diphtheria. In France, where there had been much more opportunity of studying the disease than in England, the attention of the profession was first drawn to the consideration of the subject by Brettoneau's work on Diphtheria, and since that time much deep research has been devoted by Trousseau, Brettoneau, and many other French pathologists, to understand the true nature of the disease process, with the result that at the present time the profession in that country almost universally regard the two diseases as identical. Among the first in England to advocate the theory of identity were Dr. Hillier and Morell Mackenzie, in 1863. After that Dr. George Johnson, Dr. Semple, Sir William Jenner, and others, in able articles, maintained that the cause of disease was the same for croup and diphtheria, and influenced thereby public opinion very strongly. Diphtheria is described as an acute, specific, constitutional disease attended by inflammation of the pharynx, having as a result an exudation of lymph. It has a tendency to spread in all dire— —to the nares, to the mouth, to the larynx, and even down the œsophagus. From the larynx it may spread down the trachea and bronchi. But in so-called true croup we also get a membranous exudation of lymph in the larynx. The question then arises, are there two kinds of membranous inflammation of the larynx—one specific, and the other not? This is the point I wish to discuss. The views of those who believed the two affections to be entirely distinct were based, first, on pathological anatomical differences, and secondly, on clinical differences. It is said that in diphtheria we have an exudation similar to that in croup, but situated *in* the tissue of the mucous membrane itself instead of *on* the surface of it, as in croup. So that when we pulled away the membrane in diphtheria we always removed with it a part of the underlying tissue, leaving a bleeding surface, whilst in croup the deposit separated easily and left a surface intact, or, at the most, only hyperæmic. This view of the difference of the situation of the exudation, whether *within* or *upon* the mucous membrane, was first advanced by Virchow, but afterwards, on account of the numerous cases which passed into one and the same condition by insensible gradations, he admitted this view to be no longer maintainable. Virchow then adopted the theory that the anatomical characteristic of diphtheria consisted in the existence of a necrosis of tissue, which took place beneath the false membrane. He pointed out that this tendency to necrosis must be placed in the foreground, that is to say, that the peculiar feature of the diphtheritic process lay in the necrosis of the underlying tissues. Bamberger and Gerhardt both declared that this explanation was not admissible, considering the necrosis only a difference in degree rather than a real distinction, and this view is now generally held by most investigators; and, indeed, many cases are found in which, although clinically answering to croup of the larynx, there is exudation within the mucous membrane and also marked death of tissue; and, on the other hand, there are cases of true diphtheria with superficial membraniform exudation. On this point we have the testimony of Wagner, whose post-mortem investigations have been extensive.

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