THE MORBID ANATOMY OF CROUP.

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I HAVE gradually arrived at the conclusion that English writers on croup have confounded two very different diseases. They describe croup as an inflammatory non-contagious disease, resulting usually from exposure to cold, more common in northern latitudes and in cold seasons than in the south and in the summer, and apt to recur year after year in the same subject, although usually in a milder form. The disease is to be treated by warm baths, warm fomentation to the throat, steam inhalation, and nauseating doses of ipecacuanha or antimony. Some authors advise mercury to be given. If the disease prove fatal, false membranes are described as occurring in the larynx, and often extending into the trachea and bronchi. In this account we have the history, the symptoms, and the treatment of acute catarrhal laryngitis; but the morbid anatomy is that of diphtheria, a disease which has an entirely different history. The first English writer who described the false membranes as the distinctive feature of croup was Dr. Home, whose pamphlet "On the Nature, Cause, and Cure of Croup" was published in 1765. He gives a brief history of the first two cases in which he observed this striking anatomical change. The first case was that of a boy, aged 7, who died after a few days' illness with symptoms of croup. Four days after the death of the boy, his sister, aged 5, was seized with similar symptoms, and died suffocated on the third day. In both cases, false membranes were found in the larynx and trachea. The fact of two cases occurring in quick succession in the same family would alone render it probable that the disease was diphtheria, and not inflammatory croup. The probability is still further increased by the fact that in the second case the tonsils were swollen and covered with mucus, and there was some difficulty in swallowing. From that time to this there has been a tradition amongst English writers that an exudation of false membrane is the usual result of inflammatory croup in children. Bretonneau refers to Dr. Home's cases of croup as examples of "malignant angina", which is one of his synonyms for diphtheria. (*Memoirs on Diphtheria*, New Sydenham Society, p. 107.)

Dr. Cheyne's work "On the Pathology of the Membrane of Larynx and Bronchi," published in 1809, has been a great authority on the subject of croup. That he met with cases of diphtheria is evident, from his statement that he had seen several children whom he would have supposed to be suffering from the second stage of croup, but in whom, upon examination, he discovered what he calls "sloughs on the tonsils and uvula." The children died; and, although the bodies were not examined, he expressed his belief that, since the cough, voice, and breathing were those of the second stage of croup, "the larynx would have been found lined as the fauces were."

It is only during the last few years that diphtheria has been recognised amongst English practitioners as a distinct specific, infectious and sometimes epidemic, disease. Meanwhile, the French pathologists Bretonneau, Trousseau, etc., have given a complete history of diphtheria. Croup they describe as a disease characterised by an exudation of false membrane, forming a part of the history of diphtheria, and quite distinct from catarrhal laryngitis, which Bretonneau calls "stridulous angina" and "tracheitis," and Guersant designates "stridulous laryngitis, or false croup." There is here no question of laryngismus stridulus, or spasmodic croup. (See the *Memoirs on Diphtheria*, translated by the New Sydenham Society.) Guersant remarks that the cough is loud and sonorous in cases of stridulous laryngitis; while in membranous laryngitis or diphtheria it is hoarse and stifled by the exudation. The voice, too, in this latter affection is not simply hoarse, but almost suppressed.

My attention was first specially directed to this subject by finding no false membranes in the air-passages after death from acute catarrhal laryngitis in children. Mr. Porter, in his book on the *Larynx*, mentions three cases of fatal croup without false membranes in children, aged respectively 5, 4½, and 2½ years. Sir Thomas Watson says "there are a few cases in which this adventitious membrane is not formed at all; the inner surface of the windpipe is seen to be merely reddened and tumid, and covered with viscid mucus; or, perhaps, with a shred or two of concrete albumen here and there." Then I have occasionally met with cases of supposed inflammatory croup in which I found during life diphtheritic exudation on the tonsils, soft palate, or pharynx. With these appearances were associated other indications of the true nature of the disease; perhaps evidence of infection, discharge from the nostrils, swelling of the glands under the jaw, albumen in the urine. In some cases, the evidence is less complete. Most writers on diphtheria describe cases (and I have seen some) in which there is either no exudation visible on the fauces, or there is a scanty secretion, which soon dis-

appears while the exudation within the air-passages increases and destroys life. And, again, there are other cases in which the diphtheritic exudation begins in the air-passages, and never extends to the fauces. In such cases, the diagnosis may sometimes be difficult. (See Trousseau's *Clinical Medicine*, vol. ii, p. 486-7, New Sydenham Society.)

Our present knowledge of this subject warrants us, I think, in stating positively that two distinct diseases have been confounded under the name of croup by many English writers. 1. Acute catarrhal laryngitis. This, in children, is inflammatory croup; and, whether it occur in children or in adults, the only structural change in the larynx and trachea after death is congestion and swelling; sometimes superficial abrasion of the mucous membrane, with mucous or puriform exudation on the surface, but no tenacious false membrane. 2. Diphtheritic croup, which, whether it occurs in the child or in the adult, is attended with the formation of a more or less abundant and tenacious false membrane in the air-passages. The exudation of false membrane depends, not upon the age of the patient or the intensity of the inflammation, but upon the specific character of the disease; so that the presence of the false membrane after death would suffice, in a doubtful case, to determine the nature of the malady.

One circumstance that has helped to perpetuate error with regard to the morbid anatomy of croup has been the fact that inflammatory croup is a far less fatal disease than diphtheritic croup. Most cases of the former recover when early and judiciously treated, while of the latter by far the greater number die. Therefore, after death with croupy symptoms, false membranes are more frequently present than absent. Both Home and Cheyne report several cases of recovery which were nearly certainly cases of simple laryngitis or inflammatory croup.

The practical importance of distinguishing acute catarrhal laryngitis or inflammatory croup from diphtheritic disease of the air-passages is manifest, when we consider that the treatment which usually puts a stop to the former disease is unsuitable, and even injurious in cases of diphtheria, a disease which requires an entirely different method of treatment, and in which local remedies are especially valuable.

ON THE BODY-WEIGHT AND UREA IN A CASE OF STARVATION.*

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THE ingestion of food is a necessary and not unpleasing part of our active existence; and we have all realised the special gratification that arises from it after a prolonged abstinence. If we could possibly imagine a chronic state of hunger with a strictly periodical supply of food in such quantity as only just to ward off from the body the injurious results of deficiency or of want, we should have some conception of the delight that food affords to prisoners not only in the act, but in the hope, of its participation. We should at the same time arrive at some idea of the value that the prisoner attaches to his food, and of the vigilance and precision which he exercises in watching that he receives his due allowance. Curiously enough, for all this, prisoners are found at times to act on the very opposite principle, and refuse their food. Now, under what circumstances does a prisoner reject this morsel, usually so delicious, he being at the time able, but *unwilling*, for reasons of his own, to partake of it? As far as I have observed, the occasions on which a prisoner resorts to complete or partial abstinence, may be comprised under three heads: 1. In order simply to make himself ill, so as to avoid work or to go into hospital; 2. As a part of the process of feigned insanity, as, for instance, on the grounds that poison has been put into the food; 3. From a feeling of resentment at supposed ill-treatment, in the foolish hope of giving annoyance to the offending individual—a state of mind not so uncommon as we would at first think it. It would be out of place to enter upon its discussion here; although I may state that it was a feeling of this sort that actuated the prisoner to self-starvation in the present case.

The question of what has been called the "balance of the vital economy" is not only interesting in itself, but important and valuable in the ordinary relationship of life in proportion as we are able to unravel its many intricacies, and to open out the benefits to be obtained from an accurate solution of it. To arrive at a true notion of the effect of the ingestion of food upon the body and its egesta, it is necessary, in the first place, to ascertain, as far as possible, the relation that the body has to itself in the absence of food ingested; *i.e.*, during starvation. Investigations in this direction have been made, although not

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