1874-80 Sims

The Non-Identity of Croup.

and

Diphtheria

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by

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Is there any real and fundamental difference between an ordinary case of Laryngeal Diphtheria and a severe case of so-called true or genuine Croup?

This is a question which I have been asked by intelligent laymen, interested in the matter, more than once; and I daresay it is a question which in one form or other is put to most medical men. Public interest is but natural, for the very same subject, ever since the publication of Dr Bretonneau's exhaustive and brilliant memoirs on Diphtheria, has over and over again agitated the entire medical profession. At all events, ever since Dr Farr introduced the name Diphtheria into our medical nomenclature, ever since the epidemic character and the devastating power of this disease was so recognized that a general name became absolutely necessary, the discussions on its relations to Croup have been endless. But it is even a note-worthy fact that even now, although the foremost members of the profession have given their whole and undivided attention to it

the question seems as unsettled as ever. One can hardly take up a medical Journal, or read the records of any medical society, without meeting with a new discussion on the subject; and in every case one meets with the very same diversity of opinion and with the very same evidence of what might be called a settled unsettlement. Moreover, on reading the best modern literature of Croup and Diphtheria, that is to say, the works of the most advanced and the most philosophical thinkers in medical science, one finds precisely the same thing. The writers, like the active practitioners, range themselves into two schools; on the one hand, the two forms of disease are viewed as identical, on the other hand, they are viewed as essentially different.

Why is this, one is naturally inclined to ask. And I get the want of unanimity on the subject is precisely what one sees has taken place in the differentiation of all diseases. What a long and a stubborn struggle was involved in the elucidation of typhus and

Typhoid Fever, a hard and soft Chancre! So much so that even yet the traditional unity of Typhus and Typhoid clings to the older practitioners like a cob-web, and may be found in more country parishes than is imagined. ~~But~~ Generalization has always been the forerunner of differentiation, not only in the history of Medicine, but in the history of every science, ay, and of every art. ~~Generalization~~
But ~~the~~ in the case of the identity or non-identity of Croup and Diphtheria, the significant fact is that the upholders of the former in opposition to the latter doctrine are by no means men slow to appreciate a difference. On the contrary, as I have already said, the upholders of the identity theory are the very foremost minds in the profession.

It will be my object in the following pages to show that there is a radical and a very appreciable difference between the two diseases — a difference extending through their whole nature^x (phenomena or natural history (if you will)); a difference of kind more than of degree,

x Note – The nature of a thing is commonly conceived [illegible] the [illegible] of its [illegible] simple + indivisible – the whole nature is therefore a tautology

as great and as pronounced as the difference between a soft and a hard Chancre, or a typical case of Scarlatina and a typical case of Diphtheria.

In introducing the question I have used the term severe case of Croup, purposely; because on all hands, it is admitted that there is a radical distinction between a case of ~~Croup~~ Catarrhal or, as it is usually called, of "false" Croup and an ordinary case of ~~Diphtheritic Croup~~ Diphtheria. Consequently, in the ordinary discussion of the question any consideration of the mild or "false" form of the disease has been generally, as a matter of course, thrown overboard. Whilst admitting the full force of this distinction, may whilst insisting upon it, is there, let me ask, any such distinction between a case of "false" and a case of "true" Croup? This is a very important matter; and much more depends upon it than at first sight seems; for if there be no essential difference between false and true Croup; then by granting ~~this~~ &

The appreciable and well-marked distinction which is universally alleged to exist between false a Catarrhal Croup and Diphtheria, the very same distinction must be granted between Laryngeal Diphtheria and genuine or true Croup.

First, then, let me inquire into the relationship between so-called "false" and so-called "true" Croup.

The term "false" was applied by M. Guersant (who created the name) to a form of croup specially characterised by a spasmodic element and also by its milder tendencies; in contrast to the "true" or "genuine" Croup which was invariably the same in its severity and suffocative development. But it is questionable as M. Jaccoud (in his admirable Article on Croup in Reynold's System of Medicine) has well pointed out "if he has not included many of the slighter cases of Diphtheria as well as of Croup; he has remarked the frequency with which it occurs among the upper classes of Paris rather than among the poor; and that it

is sometimes observed in connexion with ulceration on the fauces, a complication which he justly considers as "fort embarrassante pour le diagnostic" " However, the term is now invariably employed, and probably Dr Guersant meant it to be so used, to designate the milder forms of ~~Catarrhal~~ Croup without any reference to Diphtheria whatever and if the terms cover well recognized and well established forms of the disease, the advantage of their adoption is obvious. On the other hand, they are palpably open to objection, of which Dr Guersant himself, seems to have been aware; for, in the first place, a Croup that is "false" can be no Croup at all; and, in the second place, even admitting that it can be false, the "genuine" or "true" form of Croup is not so genuine as it looks, so much so, that the diphtheritic variety is frequently and unknowingly included in the term; in which case the so-called "true" Croup would be even less true than the

"false and true"

so-called "false".

But in truth, in the entire history of medicine, no two subjects have suffered more than Croup and Diphtheria from a bad and an unavoidably bad nomenclature, which, more than anything else, has retarded the progress of their elucidation. In science, particularly in medical science, there is everything in a simple name. The less it tells the better. That name is not of right the best which indicating the disease indicates nothing more. This was precisely what Dr Home, when he issued his famous essay on Croup, purposely tried to do. and yet he failed, the critics tell us. But for a whole generation was it discovered, as we are told, that simple as his term "Croup" was, it really indicated more than one affection. I do not know that Home was responsible for this, in spite of Mr. Bretonneau's copious strictures. It would lead me too far astray from my central theme to follow Mr Bretonneau in all his eloquent denunciation of the Scottish phy-

rician's arrogant claims to discovery. But in connection with this denunciation, I cannot help saying that a more unjust and a more unphilosophical estimate of a great man's work and influence is not to be found in medical literature. M. Bretonneau gravely tells us that "physicians, after the new impulse given by ~~Morgagni~~ Morgagni, would not have failed to discover that malignant Angina consisted only in a gangrene of the mucous tissue, if Francis Home by publishing his "Treatise on Croup" had not suspended the progress of observation" "It is difficult to conceive" he adds "how a work which contains only a small number of isolated and scattered facts was capable of obliterating the traces of the ancient traditions, and for half a century of preserving a great amount of influence over the opinions of practitioners. Such however is the fact!" (vide introduction to Bretonneau's Memoirs on Diphtheritis). ~~Diphtheritis~~ Now if Home's ~~work~~ calm careful ~~work~~ little "Treatise" proved anything at all, it proved that the gangrene of ~~what~~ malignant Angina "consisted only in a gangrene" of membrane

— he does not even call it "mucous membrane"; morbid membrane is his term, and it would be hard to find a better even in these recent days. In the next place, far from suspending the great impulse given by Morgagni and the progress of observation, Home's monograph is of value precisely because it gave an additional help and gave a new stimulus in this very direction; for the monograph was grounded on morbid anatomy, and morbid anatomy alone. Men began to see more and more the necessity for opening dead bodies; the lesional aspect of disease came upon them like a great discovery; and the possibilities of a rational pathology, classification and treatment already dawned in this "fascinating" little work. No doubt the effect of the "treatise" was to divert men's minds from "the gangrenous throat" of the ancients, as Mr. Bretonneau complains; but Mr. Bretonneau has forgotten that for well nigh two thousand years the ancients had been inspecting and describing their "gangrenous throats" in vain, without even at any rate approaching to anything like a true explanation of the matter. Home's diversion from the trodden path was, therefore, not without value, if for nothing else than as a new point of departure for

posterity
~~posterity~~. In truth, Horne's ~~x~~ essay and its influence were not the least important part of the preparation for M. Bretonneau's own most masterly elucidation of Diphtheria; for the identity of the pharyngeal and laryngeal lesion became thereby not only possible but in the long run certain. M. Bretonneau's cheap sneer ~~about~~ over "the small number of isolated and scattered ~~and the cases~~ facts" is unworthy of so great a man: ~~& M. Bretonneau to be oblivious of the~~ for M Bretonneau must have known that it requires a very great number indeed of such "facts" to obliterate the traces of any great tradition; and that if Dr Horne's small collection was of the kind here alleged they should never have appeared in the history of medicine ~~at all~~. His facts are typical cases; and to a man with the fine appreciation of analogy and the clear eye to relationships which Dr Horne must certainly had one such case is worth "a forest of facts". ~~But I have~~

But I have wandered too far from my subject. To return, the terms "false" and "true" as applied to drugs must not to be taken as representing two separable entities; they are relative terms, and nothing more,

indicating a difference of degree, but not of kind.
Is this true of the a varieties of Croup under discussion? Are they one and the same disease? Is Simple Spasmodic Croup, but a less severe form of genuine suffocative Asthenic Croup? I think so, and for the following reasons:

Both "false", or, if I may be permitted to use the word, simple and genuine croup are diseases of early childhood; in both cases, boys are more subject to it than girls, and, in my experience, fair robust boys more than dark and delicate. Both are produced by variations in atmospheric temperature; and as such variations are common to a district it is not at all surprising that a number of children should be attacked with either the one form or the other at the same time. As a matter of fact, it is a common experience to have when we fall upon a case of acute Asthenic Croup to have at the same time several cases of mild Spasmodic croup on hand. I have noticed this on every occasion that I have seen

genuine croup. Again, both diseases might be described as nocturnal diseases, the croupal symptoms being in each case, usually, although not always, ushered in without any warning; but, however ushered in, invariably at night. The child wakens up at midnight in a fright as of from a nightmare, with a feeling of tightness about the throat; and it is not at all improbable that there has been a nightmare; for is it not just possible that every case of this horrible delusion, which is anything but a delusion, is caused by a spasm of the windpipe?× Be that as it may, the nocturnal onset of the disease is so general, I might almost say so universal, that it may be looked on as not the least important feature of both forms of the disease. I have seen scores of cases of Spasmodic Croup during the nine years and a half I have been in practice, but I cannot recall one that did not begin at night.

Again, if a typical case of simple croup be left to itself — which certainly even in the mildest and simplest cases should never be done —

× Rather an asthmatic view I think; at all events it demands more argument than is given to it here.

It will be noticed that while in the great majority of cases most (if not all) of the symptoms have disappeared ~~by~~ the morning, ~~but~~ the croup has a remarkable, almost an irresistible tendency to return next night, and that this will be repeated night after night exactly at the same time and in the same way, according to the severity of the case, until the laryngeal inflammation has entirely subsided. ~~Why~~ Why it should take place night after night in this fashion it is difficult to say. The dryness of the mouth and throat in sleep, and consequently the increase of comparatively dry air on the hot congested inflamed larynx may have something to do with it; ~~for~~ In confirmation of this is the fact that children very frequently sleep with their mouths open. Certain it is that the inhalation of steam spray is the first and the quickest of remedies. The same nocturnal exacerbations are noticed in true or genuine Croup, at least until the disease has run into that stage when steam can be described

prolonged exacerbation without a moment's respite to break the ghastly monotony.

Further, Once a child has had an attack of simple croup it is rendered, ~~ipso facto~~ thereby ×, more than doubly liable to it for all time coming. Eventually the wind-pipe gets what one may call a croupy habit – just as the womb after one or more abortions gets an ~~[illegible]~~ habit of aborting ~~a croupy diathesis~~; and when this habit is fully established the least indiscretion will excite it, Wet feet, perspiration from severe running, exposure to a draught – sometimes even a very cold drink – in short a puff of wind, will all be sufficient, in the long run, to bring it on. My eldest child, otherwise a strong ~~fair~~ boy, for five years was so extremely subject to it that he could not with impunity sit down on the grass or by the sea-shore on the finest summer evening, or even at mid-day – drive with me in a dog-cart. So likewise, if a child is fortunate enough to get ~~gets~~ over an attack of genuine croup, ~~he is thereby predisposed~~ this affords him no protection for the future whatever. On the contrary one attack predisposes to another in an increasing ratio i.e. of the suffocative paroxysms but not I suppose to the membranous exudation JMB

But again, as ~~the~~ still showing the close affinities

× Note. "Ipso facto" is a ~~thing~~ done; not, as in the English language, anything whatever existing, as one case of[?] Hence "ipso facto" is not applicable to the case of a child having an attack of disease.

between the two forms of disease. I have noticed in the few cases of genuine Croup that have come under my care, that they were children who were subject to simple Croup; so subject in one instance that I can specially recall that the parents got quite accustomed to it, so accustomed indeed that ultimately they treated it with indifference. This indifference the mother learned bitterly to regret. One autumn night this boy took a fit of what seemed ordinary simple Croup from cold. For two nights the croupy symptoms were comparatively mild and as usual the parents thought little of the whole attack. A vomit and a bath were given with apparent benefit. But on the third night symptoms of choking set in to such an alarming extent that I was immediately sent for. I found the young boy – aet 5 – in a deplorable state. So much so that tracheotomy was immediately advised this however was refused and the child died before morning of

their suffocation. Here I should remark that there was no ulceration or deposit or membrane of any kind in the throat and pharynx. It was remarkably cold weather for the season of the year. I had three cases of simple croup at the time; one of them being my own son. And finally although there were four children in the same family where the poor boy died, and although, contrary to my orders, they were constantly beside him in his illness, and – still more crucial test – were even permitted to kiss him on his death bed, nevertheless not one of them took the disease. X

Again, I have been sometimes ~~frequently~~ told # in attending my cases of simple croup that the child has had at least one attack of genuine croup before. Parents statements are not to be relied on, it is true; for what is genuine in their eyes is at times simple croup in a physician's; and very often indeed what is simple to them is genuine in all seriousness. But I have seen one case that I can thoroughly authenticate. The child had an attack of acute sthenic croup, so acute that

X I think the circumstances stated in this paragraph would be quite otherwise interpreted by the [illegible] view of the "identity" partisans. The writer says that this was not a case of true croup but only an apparent case of laryngeal catarrh or simple croup.

I never dreamt of its recovery. It was the first case of the kind I had ever seen, and, although I have since seen several such cases, I shall never forget it. It was in the Spring of 1873 (April 16th.) and the message I got was that the boy - James M- was on the point of suffocation. And on the point of suffocation he most certainly was. Here, too, I found that the patient had been subject to convulsions and croupy cough, of a night, for at least a year, prior to the severe attacks of ~~stoma~~ ethmoid croup from which he was then suffering. On the present occasion he was on a visit to the district with his mother, who - the weather being unusually warm for the time of year - had two days previously taken a bath in the sea, but, very imprudently, had also taken this child along with her. There were apparently no bad effects from this, all day; but in the middle of the night, ~~when~~ he was attacked with a sharp fit of croup, sharper than his mother had ever seen before. By morning he got a little better

but through the day he was feverish flushed ~~and~~ excited and restless; and then at night the paroxysms of suffocation all returned with double fury. When I saw him, the patient ~~was~~ a fair curly haired strong young boy lay in his mother's lap, apparently at his last gasp. For two or three minutes it seemed impossible for him to recover. His face was livid; great drops of perspiration ran down his brow; and the veins of the forehead were at the bursting point. His partially blood shot eyes were and starting out of their sockets, and an expression of horror, agony and unspeakable despair was in his whole countenance. With his head thrown violently back on his mother's arm, and with his feet pressed in his nurse's hands, he jerked up his chin, heaved his chest, opened his mouth wide, clung to his mother's dress, and struggled for air. It was as if an unseen horrible hand were clutching him by the throat. Nothing in nothing in art has been imagined like it Nature could be more awful. except perhaps the murderful Lawson. Gradually, as if worn out, the poor child gave in, and

worn out — gave in!

the breathing became a little quieter and easier. But even then his eyes wandered restlessly about, now to his mother, now to his nurse, now to me, with a beseeching terrified look in them that was pitiful in the extreme. Here too apart from a congested state of the mucous tissue there was not the slightest evidence of membrane or deposit, in the soft palate, tonsils, epiglottis or pharynx. Tracheotomy being persemptorily refused, I washed out the throat and pharynx with a strong solution of Copper Sulphate, advised the free use of steam inhalation, and took my departure without ever expecting to see my patient again. Next morning when I called what was my surprise to find him sitting up in bed comparatively well and playing with his drum! Through the night, he had expectorated a large piece of membrane which - having been reserved for my inspection - turned out to be creamy white, as thick as kid leather and as tenacious

as parchment. It formed a complete cast of the trachea and lower part of the larynx. The child ~~was~~ made a good and a steady recovery. For a few nights there was a croupy cough. But it gradually subsided; the "true" croup degenerated into a "false", the acute inflammation into a simple. I watched the lung for a month, and there was no bad effect left. About eighteen months afterwards, the lady and her family came to Innellan again. On this occasion I was twice called to see my little patient, who on each occasion was suffering from an attack of simple croup, and who, ~~the~~ ~~boy~~, his mother assured me, had been repeatedly attacked in a similar way during the 18 months' interval.

Now all these facts are very significant, and point to a unity in ~~disease~~ character that, to my mind, is simply irresistible. But even of "false" croup itself, who can say that the term covers one, and only one, ~~stage~~ of ~~inflammation~~ corrupted inflammation? Are there not grades of even a "false" croup"?

Is it not the fact that this form of the affection is subject to very considerable variation? Is it not seen, times without number, that one attack may be trifling to the last degree – a mere nocturnal crossness, in fact; whilst the very next attack may be comparatively serious with features approaching to true Croup? Sometimes, it may be appropriately termed spasmodic sometimes Catarrhal, sometimes both. But the same inflammatory character is at the bottom of them all. It seems to me that the relation of false to true croup is precisely the same relation that exists between a simple and an acute Conjunctivitis.

When does a simple inflammation of the Conjunctiva become acute; or rather are there not many degrees of inflammation between the two extremes? I have frequently seen the same child attacked time after time with Croup which would pass away in a few hours; but on extra exposure, or during extra cold weather, attacked in such a way that symptoms of cha-

I am not sure that 'simple' & 'acute' Conjunctivitis are perfectly analogous.

I should consider them the "least degree" of trifling."

thing were really pronounced and the respiration undoubtedly laryngeal. Under prompt treatment these symptoms would pass away; and the child make a good recovery. But how much more inflammatory action was necessary in such a case to make it one of genuine Croup?

~~Because~~, given a certain amount or intensity of inflammatory action, and the peculiarity of the larynx - that is to say, its narrowness, its relation to respiration, and its fine nervous supply - will tend greatly to exaggerate the inflammation, and to rapidly aggravate it. How much inflammation is required for this exaggeration, it is impossible to say. The symptoms and entire course of simple Croup would indicate that its inflammation is of a degree just short of the exudative stage; in other words, what exudation there is, is purely of an interstitial character, and when the ~~Croup~~ the exudation recedes, it subsides by a rapid process of resolution. But suppose the exudation and inflammation should reach one stage further, so that respiration ~~is~~ should be really impeded; this obstruction to respiration would act as a new and a very terrible exciting

cause – an operating, cause rapidly increasing with the increase of its result –, an operating cause leading an inflammation, simple enough perhaps, rapidly on to an acute climax. I do not say that this is common; for as a matter of fact simple or false croup rarely, if ever, has an inflammation to the degree I am referring to. But it does not seem to me impossible, and I should not be surprised to learn that it is probable, that occasionally a simple inflammation of the windpipe has been converted into an acute through the very cause I am referring to. This, at all events, would account for the apparent relation existing between false and true croup. From the nature of the laryngeal seat and its relation to the very important act of respiration, a relation – a sudden leap from a simple to an acute inflammation – is rendered imperative.

From these considerations therefore I am led to infer that the relationship between so-called "false" and so-called "true" croup is close and deep. in fact a relationship, amounting to identity, –

the characteristic phenomena of "sthenic" Croup being all represented – although represented in miniature – in the simple form.

Thus if we dismiss the latter from our inquiry into the identity or non-identity of Croup and Diphtheria we must also dismiss the former. But whilst the elimination of sthenic Croup must be conceded, it may be said, and said with reason, that what identity there is between the two forms of disease, is between not sthenic, but asthenic Croup and Diphtheria.

Granting the difference of full force of the distinction, let me inquire, in the first place, what is asthenia. Wherein does the asthenia of Croup differ from that of any other intense inflammatory action? What is asthenia but a want of strength? If a case of sthenic Croup does not terminate either in suffocation or the expulsion of the membrane, it will require neither mercury nor tartar emetic nor bleeding and blistering to make it "asthenic". Gradually and surely the vital powers will fail

and the ~~fever~~ "asthenic" symptoms, they will be prostrate, with a thin rapid soft pulse, shallow countenance, high temperature, and muttering delirium. In short, the asthenic is but the last stage of the sthenic affection. So that if sthenic croup is to be dismissed from the inquiry, asthenic must likewise follow.

There is, however, one very material point of difference between the two stages - a point of difference that would seem to bring the asthenic form into a certain alliance with diphtheria. The alliance to diphtheria, however, is but seeming. The difference between the two stages has long been recognized. No writer ever described that difference better than Home in his essay to which I have already alluded. He says "there are two very different varieties of suffocative stridula; the former most inflammatory and less dangerous; the latter less inflammatory and highly dangerous. In the former the pulse is strong, face red, and drought great, and they agree with evacuations: in the latter, the pulse is very quick and soft, great weakness, tongue

moist, less drought, great anxiety, and evacuations hasten death" I am aware that many modern critics have contended that the latter description - "the less inflammatory and highly dangerous" description - is readily, and quite unnecessarily on Home's part, included Diphtheritic Croup. To say the least of it, this is open to question. But all events, it cannot be denied that there are two appreciable stages of acute croup, in one of which the pulse is strong, the face red, great drought, and the case agrees with evacuations; and in the other of which the pulse is very quick and soft, great weakness great anxiety and ~~the case~~ "evacuations hasten death". And the reason is obvious. In a case of asthenic a new element is added, - the constitutional disturbance is not of proportion to the local lesion; and so far as this is the ~~case~~ fact, the disease approaches the ~~boundaries~~ boundaries of Diphtheria. There is here, as in Diphtheria, undoubted tissue change all over the economy, revealed in the presence of albumen in the ~~blue~~ urine, the absolute prostration of the vital powers, in the low muttering delirium and ultimate coma or convulsions. But the question arises, - is this profound tissue change different in

any sense of the term from the tissue change of any other kind of asthenia, from, say, an adynamic case of bronchitis, pneumonia, or meningitis? In all of them, there is the same tissue-change - the same product - of retrograde metamorphosis - a change in the low grade out of all proportion to, although caused by a local lesion. If it were possible for such a case to recover, the recovery would be complete. Keep up the strength and heal the local lesion, and you heal everything. So, too, would it be with croup. So, in point of fact it has been, over and over again, by the introduction of a pipe into the trachea.

Thus then whether adynamic or asthenic croup differs from the asthenic variety in the possession of a new element of danger, of an element of danger common to every asthenic inflammation. Consequently, we are led to the conclusion, that there is no real difference - a difference in kind - between any of the three forms of croup I have been considering.

Now, if there be a radical and an essential difference between simple or so-called "false"

croup and diphtheria, as is al-
most universally admitted, the same difference
must exist between the sthenic or asthenic
croup and diphtheria.

Is there, or is there not this radical difference?
In comparing the two diseases I ~~finally~~ while not take
the advantage which the manifest distinction between
simple and diphtheritic croup affords; but I will ~~post-~~
~~pone~~ rather examine them only where they must
touch each other.

I have said that asthenic croup borders on
diphtheria ~~in the case~~ in the fact of having
a constitutional disturbance out of proportion to
the local lesion; but I have also shown that
this phenomenon is common to see Renal asthenia.
~~It is so with Diphtheria too~~ how Diphtheria has
the very same constitutional disturbance; but we
have clear evidence of its having something
more. The true light in which to see Diphtheria
~~but~~ is not by the side of Croup, but by the side
of any other asthenic disease. For the formidable, the
appalling, compeal symptoms of both Diphtheritic and acute Croup

~~clothes~~ burst forth into the same terrific ~~flame~~ storm, ~~of flame~~ a storm in which all subtle differences are lost. Take an extreme case of adult pharyngeal Diphtheria on the one hand, and a case of asthenic metritis on the other — a case, where the larynx in either disease is out of the storm — and what do we find? If recovery should happen to take place, the recovery of the latter will be complete, the recovery of the former will be retarded indefinitely by a series of very appreciable drops. The whole body has been deteriorated; the nervous, the muscular, the vascular, the glandular, the haematic (if I may call the blood, so) systems have been one and all poisoned with a poison more and above that which has resulted from the asthenic condition: as is evidenced by the long and persistent anaemia, the continuance of albumen in the urine, the colorless ~~fibrous~~ waxy-like complexion, ~~and~~ a remarkable the feeble heart's action, and the train of paralytic phenomena: ~~There has been~~ and there is evidence of this poison even from the onset of a Diphtheritic attack, whether it be laryngeal pharyngeal nasal or cutaneous. How often do we come upon cases, where

there is from the very beginning absolute prostration, apart altogether from the local lesion! And even when the prostration is not absolute are not the glands affected; the blood altered as evidenced by the dirty look of the patient — and is there not albumen in the urine? I have noticed in a good many cases too that the chlorides of the urine are decidedly deficient; but to this latter point I shall return again. All this, be it observed, takes place whether it be a case of laryngeal, nasal, pharyngeal, or cutaneous ~~croup~~ diphtheria. But it is particularly observable in the laryngeal form. Are such phenomena observed in Croup? even in asthenic Croup? I have purposely avoided the laryngeal lesion hitherto. But does the same radical difference hold good here that holds good in the constitutional disturbance? It does. And it holds good for this one ~~reason~~ very important reason, that the inflammation of the one is a simple but an acute inflammation; the inflammation of the other has

nothing simple about it, - it is specific all through. This is the one and essential difference that reaches through the entire nature of the two diseases. Diphtheria is a specific acute constitutional disorder with definite specific processes, and definite specific morbid results. Croup has nothing specific about it: the whole danger of its inflammation lies in the extension of the lesion; Diphtheria has the same deadly danger superadded to the ~~most important danger~~ one, if anything, more deadly still. A child suffering from laryngeal Diphtheria has but little or no chance of recovery, even with tracheotomy, especially if the lungs are involved as they are in the vast majority of instances. On the other hand, a child suffering from croup, even asthenic croup, and with even grave pulmonary complications superadded, will, if well stimulated and well nourished, not only have a chance of recovery with tracheotomy, but in all probability will recover. The management of a fever

case has been well likened to the manage-
ment of a ship in a storm. But the
management of a case of Laryngeal Diphtheria
is something far more serious. It is like
the same ship in the same storm, but filled
with people, and in flames. ~~Here~~ There is
danger of imminent suffocation for the people
from smoke;
~~there is~~ and even when ~~there is secured there~~
a rent has been secured there is still the
danger from the flames; and by the time the
flames are extinguished he will be indeed
a great navi-
gator who will still bring the burnt and battered
wreck through all
the ~~tempest~~ tempest to a secure haven. But
all this and more than this has to be done
for a child dying of Diphtheritic croup.

The false or morbid membrane of croup is an
exudation of acute inflammation, and acute in-
flammation alone "profoundly affecting" no doubt
- as Mr Squire writes* - the laryngeal mucous
membrane, "its texture, nutrition and secretion"
but it is unattended with anything like ulcera-

* see Article Croup - Reynolds System of Medicine

tion. The astonishment which Dr Home expressed on seeing the comparatively healthy state of the ~~subjacent~~ parts underlying "the morbid membrane" is an astonishment experienced by every one who has examined them for the first time. There is redness, sometimes but rarely intense; which is more often it is a mere pinkness of surface. A Post mortem shade of pinkness, however, may in the living state have been a swollen purple congested thickness; for we see in the case of Erysipelas the very same thing. Cases, however, of true ulceration have been reported; but it is very questionable if such cases have been Croup at all. And as indicating the genuine inflammatory character of the affection, ~~Home~~ it has been shown that "the mucous membrane ~~has~~ not is not much thickened, and has rarely undergone softening; ~~sections~~ of the mucous ~~membrane~~ folds sometimes discover serum, sero-purulent fluid, or even pus beneath; pus has been found disseminated between the ~~folds~~ muscles and cartilages of the larynx" *

"The false or morbid membrane of Diphtheria, or

* Mr Squire's article Croup - Reynolds' System.

the other hand, is the exudation of a specific inflammation involving the structure in which it takes place in a process of softening and degeneration. It has been well described by the Vienna School of Pathologists as "an interstitial necrosis". Dr Wilson Fox has shown "lesions of the membrane sometimes exposing the fibrous tissue beneath". The microscopic characters of the tissues in which the morbid action has taken place may be deceptive; but they are remarkably suggestive. They show this, at all events, that the exudation, the membrane, is deeply and closely related to the structure in which it is formed; and that that structure, in fact the entire lesion is a nearer approach than Dr. Bretonneau ever dreamt to that "ancient" gangrene for which he had so enthusiastic a contempt.

Again, it is said that the exudation of Diphtheria is pure fibrin, whilst that of Croup ~~contains albumen in a loose~~ contains albumen in a loose matrix of the same material. The distinction may not be worth much; but it indicates a difference of

to sum up,

intensity. In short, there is the same difference between the two Croupal exudative affections, to return to my former analogy, that there is between "Agueous" or "Miasmic" Conjunctivitis, and "Gonorrhoeal" Ophthalmia; that is to say a difference of kind and not of degree.

It is needless for me to refer to the well known distinction between Croup and Diphtheria as far as the throat is concerned. ~~This is but so a natural~~ When a typical case of either disease is before us, the characteristic white glistening membrane of Diphtheria in the tonsils, velum palati, or pharynx not only reveals the nature of the affection, but distinguishes it from the — at most — tolerably congested throat of a typical case of Croup, and vice versa. But there is not always a distinct membrane of this kind. For, on the one hand, the lesion may occasionally — although very rarely — begin in the larynx, and even, it is said in the lungs; and on the other hand, by the time we have seen the patient, the pharyngeal lesion may

have healed only to start out in the larynx. Mr. Trousseau relates many cases illustrating this very point. I had one very interesting and remarkable example of the kind in the summer of 1877, when a sudden epidemic of Diphtheria swept rapidly through this district and snatched away a good many children. I was called to see a young girl who lay dying of Laryngeal Diphtheria. On examining the throat, & apart from an intensely congested state of the uvula, there was nothing to be seen. And yet there was a perceptible odour of gangrene. Three or four hours thereafter, the child brought up some membrane, long shreds of membrane from the larynx; but to my surprise they were fresh white and odourless. Again I inspected the throat; and on this occasion, my attention was arrested by the dark appearance of the very top of the uvula. I turned it well forward, and found on its posterior surface, a decomposed slate-coloured offensive membrane. The brother of this patient also lay ill of sore throat at the time.

He had no laryngeal symptoms. But on inspecting "the sore throat" I found the right Tonsil and anterior surface of uvula glistening with membrane, like mother-of-pearl. Next day, he had severe Laryngeal Diphtheria; and the mother-of-pearl appearance of the throat had given place to livid congestion and grey dirty deposit. Finally. I think there is a difference in the two forms of disease seen in their pulmonary affections. ~~In the~~ In Croup, what pulmonary disturbance is produced and developed arises from the laryngeal barrier as its sine qua non. In Diphtheria, as I have already stated, the specific lesion may begin in any part of the respiratory tract. Probably, the larynx, in the great majority of cases is its "seat of election", next to the soft palate and pharynx. But it is not impossible that the specific exudative process may extend to even the minutest ramifications of the lung, at all events pneumonia is out of sight the most common compli-

cation of Laryngeal Diphtheria, whether such pneumonia be either primarily or secondarily produced. Is this pneumonia diphtheritic? I do not say that there is ~~no~~ pneumonia in Croup; but I think it must certainly be allowed to be of much rarer occurrence than in Diphtheria; and, on the other hand, I believe, that Bronchitis, ~~which it~~ is rare in diphtheria, it ~~or in~~ & ~~Croup~~ is exceedingly common in Croup. In the epidemic of Diphtheria which prevailed in this district two years ago, I was struck with the fact that in every case of urine I tested, almost without exception, not only was there albumen, but there was a deficiency of the chlorides. This deficiency was not constant in amount but it was well nigh invariable. In Croup there ~~is~~ no such thing: at least, if the chlorides are deficient, it is quite the exception; and as for the albuminous urine it never occurs save in the advanced stages of asthenic Croup. Diphtheria far from

being essentially a pharyngeal disease, is at its highest activity and in its most deadly form when it is located in any part of the respiratory tract. The rapidity with which it spreads when once established in the nasal fossae or epiglottis is something amazing: and all the more amazing when we consider that the further it is removed from the air passages the longer it lingers, and the less tendency it shows itself to spread. It is less active in the throat than the pharynx, the anterior than the posterior surface of the uvula, the mouth than the throat, and the atrium than the mouth. But once located on any part of the air passages it will find its way sooner or later to the larynx and trachea and bronchial tubes, like a respiratory erysipelas.

The pneumonia complication then becomes a necessity. To be sure it also "travels like lava", as Trousseau writes, for down the oesophagus. But so rare is this that when it does occur it is regarded as a curiosity.

The wonder is that it does not travel to the oesophagus stomach and bowels invariably; for not only is there gravitation but there is also the constant deglutition to help it down-~~ward~~. In conclusion, then, I am I not entitled from the foregoing remarks to infer that Croup and Diphtheria are essentially different, in their nature, their origin, their mode of action, their morbid anatomy, and their symptoms; as different from each other as any acute and specific disease can be. But there is one other point worthy of observation: Diphtheria and Croup - acute Croup - are both very fatal diseases; but are they equally common? I think not. On the contrary, Diphtheria is at present the ~~very common~~ more abundant. Acute Croup, to judge from my short experience of nine years and a half by the sea-side, is a rare complaint. But simple spasmodic Croup is perhaps one of the most common of all Children's diseases

In these circumstances, it is not at all impossible, on the contrary, it may be even very probable, that a case of Croup, from the simplest to the severest, may take on at any time a Diphtheritic ~~action~~ character. The specific and the simple inflammation at work together in the same mucous tube is nothing more extraordinary than cancer and inflammation in the same intestinal glands. Moreover, we know as a matter of fact that Scarlet Fever and Measles, frequently end up, or are even complicated with, an attack of Diphtheritic Croup. What is extraordinary, therefore, if the very same thing should happen with a case of Acute or even Simple Croup than in Measles. Here Diphtheria is more even to be expected; for its "seat of election" - the young mucous tube - is prepared for it. Given then the materies morbi - whatever that is - of Diphtheria in a district, and that district productive even the simplest cases of Croup, these simplest cases of Croup would immediately be converted into the most appalling of all croups - Laryngeal Diphtheria, for, like Erysipelas which it resembles more than any other disease, Diphtheria hovers over the sick, but especially the croupy sick, seeking what it may devour.