THESIS
FOR THE M.D. DEGREE
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Subject.
"Interrupted Respiratory Murmur."
Thesis concerning certain conditions of the respiratory organs in which interrupted respiratory murmur is present.

The conditions of the respiratory organs to which, in the following remarks, I wish to call attention, are of so great importance, not only as regards the actual condition of the chest at the time of their occurrence, but also as regards the probability of further abnormalities resulting from their presence; they are, moreover, so easily overlooked, so readily observed only to be neglected, that I have thought it desirable to embrace the whole subject in a thesis.

Since my attention was first called to the matter, and I have had, I may say, cases under observation in some instances for nearly two years, I have been particularly fortunate in meeting with a number of different varieties of the same condition in a comparatively short space of time.

I use the expression "different varieties of the same condition" purposely, as I find that there are so many symptoms and physical signs common to the whole series of cases which I have had under observation, that we may consider the subject as a whole and in their proper order make the distinction between the different pulmonary abnormalities which are present in the various cases.

In treating of this subject I shall at the commencement state the nature of the pathological conditions which I believe to be present; I shall then proceed to describe the symptoms and physical signs of the condition, considering lastly the causation, progress, prognosis, mechanism, and treatment of these cases.
Pathology

I have been desirous, ever since I have given more than usual study to the subject of the interrupted respiration, Murmurs of the conditions which accompany it, of obtaining a post-mortem examination of a subject suffering from this abnormality, but have been, so far, unable to obtain the desired result. As the condition is not fatal of itself, especially when properly observed and scientifically treated, it would be very difficult to get from actual specimens a correct idea of the morbid changes present, and in the later stages of the disease where more serious mischief had supervened or in cases where acute chest mischief had proved fatal to the sufferer, there would be such a complication of conditions that it would be very difficult to decide as to how much was original mischief how much was due to complications or to a progression of the original morbid condition in a somewhat different manner from the state at the commencement. The only way in which one would be able to have a thoroughly accurate view of the pathology would be to get a case where the fatal issue had arisen from some disorder which had no effect whatever on the respiration organs, and that would be a matter of comparatively rare occurrence.

I shall be obliged, therefore, in the statements which follow, to give such an account of the probable pathology as I have gathered from the clinical features of the cases and from the progress of the physical signs. In different cases I have reason to believe that there are three pathological conditions present, of which the first two often occur together, though sometimes only one of the two conditions may be present. The third condition,
is generally present alone, uncomplicated by the others, though it may be present, in fact I believe it is to some extent often present, in cases which show the preponderating features of one or other of the first two conditions. The conditions are

1. Pleuritic mischief
2. Catastrophe pneumonia
3. Bronchitic conditions.

These are all present in a chronic form in the usual condition of things although there may be developed, as I shall mention later, various acute conditions as complications.

There seem to be two factors in the pleuritic mischief.

a) The results of previous attacks of pleurisy, if the enbacte variety generally but it may be of a slight intercurrent acute attack. b) The actual mischief being produced by enbacte pleurisy which may be present at the time of our examination of the patient.

In different cases we may have a different proportion of these two factors. In most instances we have a mixture of both, there being present a certain amount of mere chronic alteration and a certain amount of recent mischief from the pleurisy actually present.

In some cases we find merely the results of pleuritic attacks which may have been experienced months before, at the characteristic abnormal areas, or at other spots, distant from these peculiar areas there may be ordinary pleuritic friction sounds from interbacte pleurisy present there.

In other cases, however, there are merely present the chronic alterations in the pleurse and no signs anywhere to be observed of acute or interbacte pleuritic alteration. There seems to be generally very little adhesion, if any, of the pleuritic surfaces, modestly I think there is an alteration in thickness of the pleurse together with a certain amount of more recent effusion on the
Thickened surface. The alteration is generally local, the subclavicular and mammary regions being the common situations beneath which the pleuritic alteration is audible. Next in frequency to these the pleure covering the bases of the lungs posteriorly & the corresponding costal pleure being affected generally only on one side, whereas the first-mentioned spots are very often almost similarly affected on both sides. The affeaces are generally clear in these pleuritic cases, and the evacuation seems to have been almost entirely solid, very little fluid being ever effected.

The second form of pathogical alteration seems to be of the nature of a superficial catarhal pneumonia. It has been present at the debies anteriorly in the few cases in which I have observed it uncomplicated with pleuritic alteration, generally affecting only one lung. In most cases, where there is pleuritic alteration present, the pleuritic mischief is present as the predominant feature of the complaint, there is a varying, generally very slight, amount of catarhal pneumonia change on the surface of the lung underlying, the irritation having in all probability spread originally from the inflamed pleure, although in some cases the reverse order of events may have occurred. In all cases which have come under my observation, whether complicated with pleurisy or not, the amount of pneumonia alteration has been slight, and one would expect that this would be the case for with greater change in the lung tissue the whole type of physical signs & general symptoms would be changed. It has always been superficial & limited to certain regions, never of any great extent either in depth or amount of surface involved. It is very generally complicated by a certain amount of thickening of the pulmonary membrane of the bronchial tubes communicating with the inflamed area.
In the cases where an alteration has taken place in the bronchial tubes there seems to be a chronic thickening of the mucous membrane of the bronchi, with either a dryness of the mucous membrane from deficient secretion, or a drying of the secretion on the mucous membrane after it has been poured out from the mucous glands.

**Physical Signs and Symptoms**

Having made the foregoing remarks relative to the pathology, we shall now study the physical signs and symptoms of the condition, and in the first place I shall describe certain of the most important general symptoms as these are first brought under our notice by the patient, in most instances at least, this greatest stress is laid upon them.

The chief symptoms common to all cases in greater or less degree are as follows.

1. **Weakness**, languor during the day. There is inability to perform the usual amount of work in the usual satisfactory manner. Work seems a burden to the patient; the slightest exertion in some cases being felt more than extremely hard work had been when in good health previously.

2. A very common symptom is a marked tendency to "catch cold" readily. The slightest draught of cold air or the least exposure in a cold atmosphere will in many cases produce a cold, in some a very protuberant one with feverishness to so on.

We are told that it is only within the last few months or years it may be that this special liability to take cold readily has been noticed, before that time our patient was not more susceptible to colds than most people.
in some cases, indeed, even less susceptible than most persons.

The most important and extremely common symptom in these cases shows itself as a well-marked feeling of exhaustion or rising in the morning. Many patients declare that they feel more fatigued after their sleep, even after an apparently sound sleep of many hours' duration, than they did when they retired to rest for the night.

Sleeplessness occurs at times, but is not of very frequent occurrence.

Nausea and an unpleasant taste in the mouth in the morning are very often subjects of complaint.

The tongue has generally a most distinctive appearance, indeed in many cases I have been led to examine the chest from this appearance alone.

A peculiar thin white or only slightly yellow-tinted fur coats the tongue, at times it seems almost shiny. The whole of the tongue, with the exception of a small portion at the tip, is generally covered with this fur, but in some cases the anterior portion of the tongue is comparatively clean whilst the posterior portion has this peculiar fur. In these last cases there are generally marked dyspeptic symptoms in addition to the ordinary chest symptoms.

The appetite is generally poor, all food having the same sickly taste to the patient, and in many cases we find that there is no desire for food at all till towards mid-day, the desire increasing as night approaches. In some cases, however, and these usually occur where the chest pain is chief seems to cause more local inconvenience in the way of short dry cough than general systemic disturbance, the appetite may be very little altered from the normal, although even in these cases there is generally not quite the same relish for food as usual, although the usual amount may be taken.
Bowels regular or constipated seldom or never followed. Flatulence is very commonly present in greater or less degree, I may be at times very distressing.

In several kinds of cases. Kinds, more especially, of the nature of "spinal irritation," are present in most cases occasionally, but not very frequently, there are pains of pleuritic nature present. Even in cases, however, where the morbid condition is caused by pleurisy, these pains are often absent. In many cases no stitch in the side has ever been noticed, nor anything approximating it. The complexion is generally pallid, and the patient looks "out of sort," at times, had quite a dyspeptic appearance. Palpitation is very frequently present at times. Anemia is also generally present to some extent. The temperature is normal in the ordinary chronic course of the complaint, but attacks of the nature of a "febrifugial cold" are liable to occur in these the temperature may rise several degrees above the natural. These attacks will be described more fully when we come to speak of the progress of these cases.

Persons suffering from this condition of the respiratory organs seem to have a special predisposition to attacks of subacute phlegmatism, and also, in some cases at least, to peritoneal inflammations of a subacute type.

I shall now proceed to a description of the special conditions of the

Respiratory System.

There is generally a cough present, but it varies in its amount. Sometimes we are told that there is no cough present whatever, and in these cases it is often difficult to make patients believe that there is any chest mischief present at all. In some cases, on the other
hand, the cough may be troublesome & frequent to
paroxysmal in character that I have been informed by
certain patients that they thought they must have caught
whooping cough from their children. In most cases there is
a short dry cough at times and there is with it the feeling
as if there were lodges deeply in the lung a small quantity
of phlegm which resists all attempts to cough it up.
The cough is most frequent & troublesome, when present at all,
in the morning, but in some cases as I have mentioned
it may be very troublesome during the whole of the day.
The spits are colourless & frothy generally, sometimes dark
from matted carbon particles, of which there are surpluses
in the air of the smoky manufacturing towns in which
I am in practice. In the cases where consolidation has
been present, the spits become purulent as softening occurs
though at first they had the ordinary character mentioned
above.

Difficulty of breathing and tightness across the chest
are always present to a greater or less degree. In some
cases there is a constant feeling of great tightness across
the chest, almost as if a heavy weight lay on the chest
prevented it from expanding; in the lighter cases there
may be less present, that on first asking our
patient as to the amount of tightness present or as
to whether there be any present, he may declare that
he has none. By inquiring further the first, however,
that he has an unusual difficulty in articulating a
long sentence, he requires to stop before he has finished
it and take a forcible inspiration often accompanied by
a slight wheeze. I find this condition invariably
present and always make inquiry about it should I be
told at first that there is no tightness present. There is
a difficulty of breathing I have said, and the attempt
to take a full breath often leads to the discovery
of certain spots where there is a pain on deep breathing.
especially in the cases which are due to pleuritic mischief.

Inspection of the chest brings under our notice the fact that the expansion of the chest is not as extensive as it should be, if it is more an up-and-down movement of the chest as a whole than a true expansion in all directions; the breathing is short and shallow sometimes to an extreme degree. There seems to be no alteration in the appearance of the chest when at rest to call for special note.

The shallowness of breathing is a most important sign; it is invariably present. Even although the mischief may seem limited to attention only if the lungs or pleurae the expansion of the whole side of the chest is affected.

On Palpation we receive confirmation of the want of expansion of the chest. Vocal resonance seems usually to be absent area.

In one or two pleuritic cases it has appeared slightly diminished, and in an occasional case where there was uncomplicated circular pneumonia it has seemed slightly increased. There are no friction, or other abnormal vibrations present.

Percussion reveals very little abnormality in most cases. Slight dulness is present in some cases where consolidation of fluid or a mixture of the two conditions is present, and otherwise. The only case in which I remember to have had very decided dulness was one where the interrupted respiratory murmur occurred at the base of one lung posteriorly, where the mischief was marked pleuritic.

 Auscultation when we proceed to use the stethoscope we get a much more pronounced condition of things than inspection or percussion had revealed. We may find the main portion
of the respiratory organs in the condition to which Schallau
Call attention, or we may have only a small portion of the
chest presenting the abnormal change, the rest being entirely
entirely or almost entirely normal.
In the great majority of cases the whole of the chest
on either one or both sides is more or less abnormal.
In the most markedly abnormal areas the respiratory
murmur has a slight peculiar "interrupted" or "stipped"
character almost as if our inspiration were divided up
into several smaller ones, the same to some extent at least
in the expiration although this is not so marked as in
the inspiration. In other portions of the chest there
is more of the "jerky" condition in the inspiration/expiration,
and less of the pure "interrupted" character
while at other spots again it is even less markedly
"interrupted" they have a "wavy" character, in all cases however, we have, not the abnormal
areas, but the pure vesicular murmur, none of the
full rustle of the normal murmur is there, but
the breath-sounds, as I shall have to mention later,
the abnormal modified friction sounds are all
sharper in sound & apparently more shallow
in the greater number of cases with which I have been
acquainted the abnormal areas have been most distinct
and numerous anteriorly, in some cases indeed the
posterior portion of the respiratory apparatus
has seemed almost normal. The commissure situation
is the mammary region but the precise spot
of greatest intensity varies very considerably.
May we note that the presence of the plethyscope
over certain spots occasionally elicits a cry of
pain, sometimes this is most evident over the
spots where the abnormal sounds are audible
sometimes it seems merely to occur from some
local cutaneous hyperesthesia, unconnected with
The respiratory organs. In some cases, the abnormality in the respiratory murmur, or the abnormal murmur produced by alterations in the pleura, is so slight, that we have carefully to examine the whole of the chest anteriorly and posteriorly, before we come across anything out of the common, although the general symptoms may be pretty distinctive of the breathing shallow.

In some of these cases, the abnormal area occurs immediately under the axilla, on the lateral aspect of the chest wall.

The inspiration, in general, may have a normal duration, relative to the length of the inspiration, it is usually somewhat prolonged; however, it is very seldom, if indeed ever, as long as the inspiration.

Expulsions are much present as accompaniments to the "interrupted" respiratory murmur; they may be present in the neighborhood, or even, if one may use such an expression, behind, deeper than the abnormal murmur, but never accompanying it. In many cases, the whole chest may seem free from rales or bronchi, but there are often present medium moist crepitations at various parts of the chest, especially posteriorly towards the bases. At these last named spots, the breathing may be vesicular or harsh vesicular, with prolonged expiration. Crepitations accompanying both inspiration and expiration.

There may be bilateral or monaural bronchi present here and there, but they are generally few in number, even if they be present.

As a general rule, then, we have for the most part the "interrupted" respiratory murmur with its transition to the "vague" variety, at points of the chest, we have the harsh vesicular breathing, accompanied by expulsions. On asking the patient to take a deep breath, we find
that it merely makes the respiratory murmur louder and harsher, it does not give it any vesicular character; there seems very little expansion of the air-cells of the lung, even with the deepest inspiration which our patient has taken.

Vocal Resonance, as I have previously remarked of vocal fremitus, seems little altered from the normal. In some cases I have thought it a little more distinct than usual, in others a little less, but there is usually nothing to distinguish it from the normal. In one case I remember to have seen it distinctly diminished, in an uncomplicated pleuritic case, in another again as distinctly increased, this last being a case of consolidation of lung-tissue from cataractous pneumonia.

This usually, as I have said, little altered, it seems to arise from the following facts:

1. Many cases are of bronchitis origin consequently we have no alteration in them.

2. The other cases generally have a mixture of a pleuritic icatarrh that pneumonic condition. In consequence, there seems to be just enough pleuritic exudation to prevent the underlaying consolidation from causing an increase of the stethal resonance or fremitus as the case may be. Just enough consolidation on the other hand, to prevent the usual damping of the vocal resonance which the pleuritic condition would produce.

I have now described, in a general way, the physical signs of this condition as a whole. I shall give the distinguishing features of the different varieties as distinguished from one another by their pathological cause.
Diagnosis

The first source of error in these cases arises from the fact that we may not have our attention directed to the chest at all, in searching for the seat of the lesion present, but we suppose that we have a patient who comes thus with a foul tongue, who complains of sicknesses, want of appetite, various neuralgic pains, etc.; we naturally jump to the conclusion that the organs of digestion are out of order. Numbers of cases of this kind I have previously described are regularly looked upon as cases of simple indigestion to be treated accordingly, and, as a certain amount of improvement occurs on making use of bitters and other remedies which are employed in cases of dyspepsia, the mistake is perpetuated, and the patient goes on from week to week month to month with relief at times, from the medicine which he takes but with an abnormal condi- tion of the respiratory organs which is constantly present and always prevents any permanent improvement. Sometimes the symptoms described by the patient are set down as being due to mere weakness or the sufferer has his or her digestion disturbed by wine, tobacco or something similar, and actually receives harm from the increased stomach disturbance. In many cases, instead of receiving the expected benefit, on this account I consider it is desirable to examine the chest thoroughly in all cases where we have a series of general symptoms like these I have mentioned in their pathological change, and this is the more to be attended to in private general practice, where the busy practitioner is anxious to ascertain at once, with as little exploration and investigation of, to his thinking, unnecessary systems as possible, the exact seat of greatest pathological change. I would especially mention again at this stage, the tongue as being an important guide in these cases, but shall not again
Describe its appearance. I may here again mention, that the respiratory organs must be examined thoroughly, no portion of the chest must be slurred over, but all carefully investigated.

The first point to be decided, after we have ascertained that there is the peculiar alteration in the chest present, is as to which of the three pathologial changes previously mentioned may be considered as being the cause of the abnormality in the respiratory organs. We shall take the Bronchitic first as this I believe much the most common form of alteration.

The percussion note here is normally resonant. The vocal fremitus is normal as also the vocal resonance. A considerable extent of lung is usually involved. The respiratory murmur has for the most part rather a 'wavy' character, by which I mean that the different portions into which the murmur is split up run into one another. 'I have less of the decided 'interruptions' than occurs in some of the other pathologial changes which may be present in other cases.

At certain portions of the chest, however, we may have very decided 'breaks' between the different parts of the inspiration or, to some extent, of the expiration, just as we have for instance, in the pleuritic cases.

There are considerable differences in the degree of relationship of the peculiar sounds mentioned to the ordinary during a phthisical rhonchus of the usual acute or subacute bronchitis. We may have the interrupted murmur in close proximity to spots where there are distinct rhonchi or coarse crepitations. We may again have the interrupted sounds themselves so much modified, in other cases, as to have almost an intermediate character between rhonchi and the distinct interrupted respiratory murmur, which in this cases may be alone present with
no intermediate sounds to give a hint as to its relationship with any other abnormal conditions of the bronchial mucous membrane.

In most cases it requires very careful auscultation to make out even the slightest deviation into the rhonchi. In these cases our diagnosis must be made rather from the general percussion notes of the abnormal respiratory murmur over a considerable portion of the chest than from any special connection with such sounds as rhonchi.

The portions of the chest which do not exhibit the peculiar murmur may be comparatively normal, they may exhibit harsh vesicular breathing with coarse crepitations or may even, as I have previously said, have rhonchi of coarse moist crepitations. I have met with cases in which, over the whole of the chest, almost nothing was to be heard but the peculiar abnormal murmur.

I have mentioned the above facts as they are likely to help some assistance in the diagnosis of this particular form of the disorder, but in most instances the progress of the case gives a clue as to our diagnosis, which we can hardly attain on first examining such a case. Many of these cases, where the bronchial tubes are alloted, return to the normal simply by a very gradual alteration in the breath sounds. The laboured respiration almost imperceptibly become normally vesicular with a corresponding improvement at the same time, in the patient's general condition.

In a few cases, however, we have a somewhat different and very instructive progress. I was for some time unable to come across a case of this kind. I am now in a position to mention, although I had been watching for one for some length of time. My supposition was that the abnormal condition which,
Cases was due to a thickening of the bronchial mucous membrane with dryness of that membrane from deficient secretion or from a drying of the secretion already poured out into the tube. To prove the correctness of this theory of causation I felt that I must have a case where, as the secretion became rather lower, less dry, or as slight secretion began to occur there should be ejection of a series of rhonchi present before the sounds became finally normal. Quite recently I came across a case where the sounds had the markedly "wavy" character to commence with, there was extremely little cough present, or even difficulty of breathing, but as improvement in the general condition of the patient ensued the signs passed with that improvement the "wavy" sounds lost their peculiar character of sounding more like the normal, distinct rhonchi at various parts of the chest were present as accompaniments. A case like the above I consider to be almost positive proof of the correctness of the theory above impressed. It was quite evident in this case, I may say, that the rhonchi were not due to an acute attack of bronchial catarrh.

We shall now proceed to a consideration of the cases which arise from alteration in the pleura. I shall at the same time consider the remaining series of cases which result from catarrhal pneumonia mischief as the two seem are generally intimately connected with one another.

The pleuritic condition is almost invariably combined with a certain amount of consolidation of the underlying lung-tissue and it is often a first difficult or even impossible to say what part one or the other process plays in the total result present.

The more local nature of the mischief in these cases of the slightly impaired percussion note give one generally an idea
ask what the actual condition of things is, even on a first examination of the chest. There is frequently also a certain amount of pain over the abnormal areas; thus slight alterations in the vocal fremitus and local resonance in the way of decrease in the pure pleuritic cases and increase in the purely catarrhal pneumonia. In many mixed conditions, even in cases where the pleurisy seems to be the nature of a slight dry fluency the vocal resonance and fremitus may seem perfectly normal. In the mixed conditions there seems to be a certain amount of "counterbalancing," produced if one may be permitted the use of such an expression, as the increase which would be produced ordinarily by the consolidation is "damped" by the pleuritic condition, vice versa.

The purely pleuritic, or mainly pleuritic condition is most commonly found either in the mammary region or at the base posteriorly, the consolidation always, in my experience, at the apex, and slightly anteriorly.

The respiratory murmur, or rather the modification of sounds which is substitute for it, as the pleuritic cases really have a sound which I believe is merely a modified "friction sound," is almost exactly similar in the two cases of cases. It has a most decided "interrupted" character, in both instances, whether the two conditions be mixed or one alone present. The progress of these cases gives one the distinctive points of the two conditions.

We shall discuss the cases of consolidation before we proceed to the pleuritic cases.

The few cases of this kind of consolidation with which I have made acquaintance have, when recovery begins to occur, passed from the "interrupted breathing" condition through a stage where tubular breathing was present; then have passed on to harsh vesicular murmur with prolonged inspiration and moist r spotitations; then to a natural or comparatively natural vesicular breathing, a complete restoration of power to the lung, as far as one could judge.
The pleuritic cases took a very interesting course. At first we could hear nothing but the abnormal "interrupted" respiratory sounds at the affected spot. After a time, under treatment, the ordinary breath sounds begin to be heard apparently at a distance behind the peculiar "interrupted" and deep in the lungs, and gradually, as improvement occurs they increase in intensity, apparent nearness to the ear, and the abnormal sounds decrease in intensity, till extent of distribution till we have finally the accompanying normal breath sounds, with or without accompaniments as the case may be, and here there is to where there are still persistent relics of the "interrupted" sounds. These last may remain there as a permanent condition or may almost entirely disappear. But may often have an idea as to the nature of these cases. From the facts I find there may be a certain amount of more recent "dry" pleurisy present, not some other portions of the chest, with evident friction sounds.

Spence.

The condition is caused by a series of attacks of "colds," is called, with various pathological results in the different cases. It is of very frequent occurrence in this town, Oldham, Lancashire, the largest seat of the cotton spinning industry in the world, and it is produced by the great variations in temperature to which the mill hands are exposed. The heat in many departments of the mills is excessive, and the operatives consequently work in the countiest possible clothing, and as they are often compelled to run out into the very much colder atmosphere outside without making any additions to their clothing they very readily take cold, especially in the severe weather which we experience in the colder months of the year. They catch cold, have said, on going out, but they, to some extent, their
This off when they return to the warm rooms, as they are thrown into an abundant perspiration, there seems however to be left a residuum of mischief in many of these cases, which is constantly receiving additions. I have met with the condition in several instances in football players & cricketers who have put themselves into a condition very like that of the mild operations previously mentioned that is to say they have brought on a copious warm perspiration I have then been exposed to a cold air have received a chill. These attacks of "cold" do not lead to a distinct bronchitis or a serious pneumonia or pleurisy but cause slight bronchial catarrh or slight alterations in the air-cells of the lung, or a slight dry pleurisy, each fresh attack adds to the mischief till we have at last the well-developed abnormalities of which I have previously spoken.

The pleuritic cases seem to occur with more frequency amongst robust males, or rather amongst males originally robust, the bronchitis in both sexes about equally. The cases where the mischief is more of the nature of a low pneumonia seem to take place first in delicate women. The blowing in the case of some persons who have recently recovered from pneumonia or pleurisy is especially in cases where the two conditions have been combined, as in the case of delicate boys, seems to have the interrupted character for some little time, even when the general health seems quite restored to the normal.

Progress & Prognosis

These cases have stated occur from repeated attacks of slight bronchial catarrh, pneumonia or pleurisy, as the
case may be. The patient, probably for a length of time suffers
merely from weak of the symptoms attributed to
"bad chest," he gets rid of the abnormal conditions
very readily at first, perhaps for months or years he
does so. There comes a time however when these "colds"
do not clear off as well so speedily as usual, it may be
from the fact that the attacks of cataract occur
when he is below his usual standard of health, the
reacting powers of his system are diminished
sometimes, it may be, he has a series of attacks
so closely following one another that he has not
thoroughly recovered from the one before another
has come upon him. Whatever may have been the
exact pathological change present, whether a slight
dry coughing or a little bronchial cataract or what,
it be, the result is much the same.
A certain amount of shortness of breath is produced
which is almost constantly present, is relieved in fine
weather or a warm room, but is never thoroughly
absent for any length of time. The affected person
is very frequently troubled with a cough in the morning,
sometimes a short dry cough at times during the day,
his palate is somewhat more fastidious than usual,
his appetite not so good as it generally is, he does
not feel so rising in the morning the same amount
of refreshing after a full night's rest as in his ordinary
health he had done; he notices that he catches cold
more readily than usual and begins to appreciate in
his dwelling, the presence of "draughts" of whose existence
he had previously been blissfully unaware.
Whether it be from the compression exercised by the frequent
alteration on their exterior or from the mischief which
may be occurring in their interior the lungs are
becoming less efficient and the blood is less thoroughly
purified and the whole of the functions of the body are
being performed in a less active & efficient manner than usual. There is a great tendency to attacks of very prostrating "feverish cold" if one may use the popular term. The patient is rapidly disabled with feverish, foul tongue, total want of appetite & great weakness. One finds present signs of bronchial catarrh, slight congestion of the lungs on examination of the chest, together with the ordinary signs of certain of the abnormalities peculiar to the chronic condition of the malady of which I have been treating. The "intermittent" murmur I do on. Recovery from these feverish attacks may be rapid, or may be slow the result of the development of subacute pneumatisation. The tongue remains coated with a thin white fur for a certain time after the recession of the feverishness; it is often difficult to get the strength and appetite brought to the normal after these attacks as the whole system seems to thoroughly upset, and our patients may linger in a weakly condition for a length of time after them. It is often on account of the occurrence of these feverish attacks that medical advice is sought in these cases, for we may thus meet with the malady in a comparatively early stage & restore the chest to a normal condition without much difficulty. In many cases these feverish attacks do not occur at all, & then our patients may have a constantly increasing chest disorder for which he is at length obliged to seek relief on account of some predominant symptom causing him uneasiness, such as extreme debility, or hard dry cough or some one or other of the symptoms fully described previously. In many cases we may find a very chronic tolustinate condition of things. As regards Prognosis we may say that the immediate prognosis is good; all the cases with which
I have had to deal have been complexity, or almost completely, restored to health. We may say, in the next place, that the more recent the mischief that has been caused, there is that a complete restoration of the integrity of the respiratory apparatus will be produced. In some of the more chronic cases, a very lengthy treatment, great care, are required before anything like a normal condition of things is brought about, while in some of the more recent cases a few days' treatment will work wonders. I have even seen cases where difficulty of breathing had been coming on for 4 or 5 years, in which a very short treatment has produced complete restoration to health.

One must always warn patients before commencing treatment in the worst short chronic cases that it may require a few weeks or even months of constant care, medical and personal, before very pronounced improvement can be produced, encouraging them on the other hand, by telling them that a perfect or almost perfect recovery in such cases will occur. The bronchitic cases, those due to atrophic pneumonia of chronic type or subacute nature, return to the normal most rapidly, the pleuritic least rapidly, in some of these latter cases there seems to be a distinct reluctance to the recurrence of the attacks of the dry pleurisy which is at the bottom of the mischief accompanied by an alteration in successive portions of the pleura.

As regards the ultimate prognosis, most cases—which are properly treated, I may say all cases which are seen early, keep their normal state which is produced by treatment. On the other hand, I believe that it is from cases like the above which are neglected, that we have, in many instances at least, cirrhosis of the lung produced, to various other serious conditions of the respiratory organs, and although many of these cases may pass through life with constant discomfort, it is only with no very serious increase in the chest mischief.
One could easily imagine that, in cases which terminate in cirrhosis of the lung, the mischief would spread either internally, from the thickened lininfamed pleurisy, or externally, from the altered valves of the bronchial tubes, and gradually increase the thickness and opacity of the lung.

In many cases there would probably be an extension of mischief from both these sources. I see might have then a very great extent of lung tissue reduced to the cirrhotic condition, and consequent great impairment of the utility of the respiratory organs.

In some few weakly persons, and more especially in cases of a catarrhal pneumonic nature, I believe that these changes may lead in the end to phthisis if they be neglected or if the patient be placed in circumstances which are incompatible with good general health. I am convinced, however, that it is only a very small proportion of cases of the kind which I have described which terminate in phthisis, especially acute phthisis. Of course, in the cirrhotic condition a certain amount of breaking down of lung tissue may occur, but I believe that in most instances these cases cause a more general depression of health and respiratory embarrassment, consequent continual feeling of discomfort with, or some insidious, chronic fibrous thickening of the mucus-lining tissue of the lungs, than the acute phthisical condition which is generally believed to induce sooner or later.

**Mechanism**

In the pleuritic cases, in the first place, I believe that the sound is merely a modification of the usual pleuritic friction sounds. This modification is produced by the more chronic nature of the mucus present. I have at present under observation a capital example of the development of this sound in these
chronic pleuritic conditions; in this case at one base posteriorly we have quite evident "distinct friction-sounds", from a comparatively recent dry pleurisy at the other base posteriorly we have a frank effusion stage; the sounds have about the "interrupted breathing" character but rather more of the coughing of the ordinary pleuritic friction; in front on the other hand, about the diaphragm region, we find most distinct "interrupted" sounds, quite soft and shallow compared with the friction-sounds behind. I watched this particular case from the time of the commencement of the attacks of dry pleurisy on the side where it shows itself in the more chronic condition of the two (pectoris lateralis) and am perfectly satisfied of the connection above mentioned.

The inflammatory matter poured out both into the interstices of the pleurisy themselves, and on the smooth surfaces of the pleurisy, seems to have, to a great extent, become replaced by fibrous or other new-formed tissue, so as to have produced a thickening of the pleurisy, a projection of the two serous surfaces towards one another at various spots. It is from the rubbing together of these thickened surfaces that we have the abnormal sounds produced, and from the comparative smoothness of the points of contact we can understand how it is that we have the softer sounds which we call "interrupted murmur" rather than the usual rough, creaky sounds of an acute pleurisy.

We now consider the cases which arise from ulceration in the bronchial tubes.

The thickened bronchial mucous membrane seems to be the main cause in these cases, and I believe that it acts, to a great extent, by preventing the air
from passing into the air-cells in an even stream, and, instead, issuing it in a series of jerks.

The dryness of the secretion on mucous membrane, either from deficient secretion or from drying of secretion which had been forced out, may also have something to do with it, causing dry sounds almost like those produced in the pleuritic cases.

In the cases where consolidation of the lung seems to be the cause it is somewhat difficult to suggest a satisfactory explanation. It may be that there is a certain amount of thickening of the mucous membrane of the bronchii communicating with the pneumonic areas, and that the unequal manner in which the air enters these bronchii causes the abnormal sound, which is readily conducted to the ear through the solidified lung-tissue. This would be a probable explanation in the cases we have described where we had first "interrupted breathing," then tubular breathing, etc. In these cases we should think that the swelling in the bronchial mucous membrane subdivided, it allowed the production of the ordinary sign of consolidation, viz., the tubular breathing, as there would then be a full stream of air with the unusual sound interpreted to present the full appreciation of production of the tubular breathing, after that of course the ordinary moist accompaniments occur as resolution takes place, as previously described.

A theory has been put forward in these cases that the interrupted breathing results from the defect of tubercles in the lung-tissue causing thereby an impaired elasticity of the lungs. This may be
a good enough explanation in some cases, but I cannot say that I ever met with a case where such a theory would be at all plausible.

Here at least it could have been explained on this supposition, as no single case went on to phthisis, but all have steadily improved. In the only case where the tubercle-deposition explanation could have had any foundation at all the physical signs became normal in a sequence which they would not have presented had the case been one of deposition of tubercles.

I am persuaded that the belief which many general practitioners have that the interrupted murmurs is present only in the early stages of phthisis, as will be seen from the whole of my remarks on the subject, is entirely erroneous, and may lead to a very mischievous prognosis and treatment.

The interrupted murmur occurs in a much larger proportion of cases than many people imagine, and it has, as I have said above, a much less serious prognosis than some suppose, although it requires a thorough investigation to a carefully considered treatment at all times.

**Treatment.**

In the case of this malady, as is usual indeed in most disorders of the respiratory system, the greatest care must be taken that a correct local treatment is pursued. I have tried a number of internal applications in these cases, but the one which has been of the greatest benefit when I have tried it is the use of general salicylic acid in the tincture of fomentation. I have ordered these fomentations to be used very
wound and nearly dry I have generally found that they could be applied regularly night after night, and in an affection like the one we are discussing where we desire to keep up a continuous cutaneous irritation, and at the same time where we do not wish to pass a certain point in our irritation, the turpentine from a most useful and manageably application.

Narcotics have been of benefit at times, sometimes indeed have proved extremely useful, especially in the case of the less tender skins where they could be reapplied comparatively frequently. They have, however, with most people, the disadvantage that they can only be applied once in two or three days and in the cases which we have to treat we desire to excite the cutaneous circulation frequently.

I have, at times, used plasters, and often very effectually, in cases where there seemed to be very considerable amount of consolidation, or bronchial cases where there was a certain amount of pleuritic mischief present.

Liquor tinctum Iodi had been used to paint the chest once or twice a day even in the more robust, stopping its use for a day or two when I found the skin getting too tender. It had been incidentally beneficial in the cases where the mischief has been of a chronic pleuritic nature, and I have often used it in cases where the turpentine or mustard seemed to produce a good effect up to a certain point and then to be comparatively useless.

In many of these cases improvement begins to show itself again with the use of the iodine, and a continuance of this brings about a successful issue. I have tried also in some cases the trebentine - acetic lieriment but it did not seem to answer as well as the turpentine - fomentations.
General Treatment.

The diet must be light and nourishing. As the morning is generally the worst part of the day as regards the patient's appetite and general feelings, we must let him have something very nourishing in the early part of the day, such as a very digestible substance like bread and jam. A raw egg beaten up in milk with the addition of a little sugar answers well with most people and we may add a little sherry or brandy if it be thought desirable. The food should be taken rather more frequently than usual, but the stomach should never be overloaded at any one particular meal.

If the patient be unable to continue his ordinary employment, exercise in the open air when the weather is favourable is of great benefit; but he must be warned to wrap up well and to continue walking all the time he is out in the air as a chill is very readily brought on by standing still in a cool air for any length of time. If able to continue at his usual work, he must be very careful to keep as much as possible out of the way of draughts, to put on extra clothing on going out into the cooler air outside from the warm rooms in which he may be working. Cricket and football must be strictly prohibited until entire recovery of health takes place, even when the mischief has arisen from chills caught whilst indulging in these games.

It is advisable that woolen underclothing be worn all the year round to protect as much as possible from sudden changes of temperature. The bowels must be looked to as if they be constipated, a little prune tincture or hypo-syrup will being generally all that is required in these cases; the pills not be taken at night.
When our patient is recovering from the mischief in the chest, change of air to a warmer district is often of great benefit, but this is comparatively useless till the chest is really almost in a normal condition unless it is intended that our patient should be under medical treatment at the spot to which he goes for change of air.

I have known, however, many cases where patients have either continued at work during the whole of the treatment, or have returned to work at once after cessation of medical treatment without previously leaving home for a warmer district at all.

Special Medicinal Treatment.

I have used in different cases a variety of remedies; there are, however, several, I several combinations of remedies which seem to be of special utility in these cases.

We shall speak first of the treatment of these disorders in their ordinary chronic course and shall defer till later the consideration of the treatment of the febrile attacks which are apt to occur as complications.

I have generally begun the treatment by using a combination of remedies which have a certain amount of effect upon the organs of digestion and which also act to a certain extent upon the respiratory organs. The following is one of my common prescriptions for this purpose.

Rx: Soda Bicarb. zt

Ammonia Liquiurz (Hawards) 40 grs

Syrup Phenicolic. 1/2

Acid Phreoeurzic (Schuleis) 1/2 oz

Lig. Phenicolic. 1/2

Ph. S. Columb. 3, ii

Phys. ad 3 viii.
I have given the prescription without any sweetening ingredient, as many patients prefer the bitter taste, but we may add about an ounce of Syrupus Aurantii or other flavouring syrup. I direct a tablespoonful of the mixture to be taken every two hours. The morphin I have put in the prescription in the solid form but I keep myself a solution of the strength of 1 grain morphia in one dram of water. The water requires to be warm to make a solution of that strength, 160 minims of this solution represent the 1/8 grain of the prescription.

The digestive organs may be so much disordered that one may be obliged to give a mixture to act only on them before one can proceed any further in the treatment. The following is one of my usual prescriptions.

1/8

\text{Viope Biscarb.} 3\text{v}
\text{Bianumis Chinitrat.} 3\text{v}
\text{Acid. Hydrocyan. Prunell.} 1/4 \text{xx}
\text{Infus. Bammbe.} 3\text{v}
\text{Syrupus Morphia.} 3\text{v}
\text{Amyrum at.} 3\text{vii}

1/8

\text{Sg.} \text{The tablespoonful every two hours.}

One must not however forget that this is merely a palliative and that our great aim must be to get the respiratory organs acted on directly as soon as possible.

The Viope Biscarb. first-mentioned has been so generally useful that in many cases I have required scarcely any other mixture from first to last.

In many cases, however, after a certain amount of improvement has occurred under this treatment things remain stationary for a little and we may then require to make a little alteration in our
internal remedies. We may require to attend a little more to the chest, and we often find that with the improvement in the respiratory organs the general condition again takes a turn for the better.

The following is very useful in many of these cases.

Potass. Bi-carb 3 ii

Leg. Ammonia Acetatica 3 ii

Aq. Ammonia. 4 dr.

 Morphia Hydr. 1/3 gr.

Led. Bichrom. 60. 3/1

Aegypt. Simplicis 3 1/1

Leg. aquam ad 3 v ii. 7/1

Leg. One tablespoonful every two hours.

There are cases where the main symptom is a severe, dry, dry cough, paroxysmal in character, as I have mentioned under the description of the symptoms, and as this often occurs in the comparatively robust an astringent mixture with morphia be of great service. I generally give about 1/30 to 1/20 grain Tartar-emetic with about 1/30 grain nitrate of morphia every two hours until the cough is relieved, and we can then use the Ammonia Bichrom. mixture as above detailed as we do not wish to depress too much.

By continuing the last named mixture we may have complete recovery, we may however, require to have recourse to a class of remedies of which I have made extensive use in the treatment of these cases lately. I refer to the salts of Hydrophosphoric acid, and can speak in the most commendatory terms of their utility in such cases as those which I have been discussing in this thesis. In such cases we require a remedy which,
shall have a powerfully stimulating & generally beneficial effect on the functions of the respiratory organs, which shall also be able to improve the general condition of the body. I shall at the same time have no tendency to disorder the digestive organs.

I question whether certain of the Hypophosphites do not rather soothe than irritate the digestive organs, and act as a tonic to them. I do not generally attempt to use the Hypophosphites if the tongue be very foul for we can generally remedy that to some extent by a simple stomachic mixture, but even with a comparatively thickly coated tongue we may often get the best of results with the Hypophosphites. I even rely on them to clean the tongue in many instances, and in these instances the effect seems to be produced by their action on the respiratory organs, and so indirectly on the system generally, rather than by any direct effect on the gastric mucous membrane.

I have generally used, in the earlier stages of treatment, a combination of the three Hypophosphites of soda, Potash, & lime, 1/2 grains of each to the dose to be taken every 2, 3 or 4 hours as the case may be. I generally add about 2 to 3 minimis of liquor strychniz & each dose and some mild bitter such as infusion of calumba or Compound Infusion of Senega. A mixture like this may be very useful where the first prescription in this description of the treatment has ceased to do good. I however, very often use the above Hypophosphite mixture as an internal remedy during the whole course of treatment, until the patient is almost well.

We generally succeed, by using the above mentioned series of remedies, in cleaning the tongue, improving the
appetite not bodily vigour and now in the last stages of our treatment. We often require one of the stronger tonics to finish the work which the milder remedies have begun. We may now use, with the greatest benefit, some of the many syrups of the hypophosphites which are designed after the pattern of Fellen's syrup and contain iron, manganese, quinine + strychnia in various combinations. I have used both kinds myself, one the glycerol of the hypophosphites made by Mr. Richardson & Co., of London, and the other the compound syrup of the hypophosphites made by Dr. Richardson & Co., of Leicester, and have obtained good results from both. We may use Echter's syrup if the tongue be clean and the digestive organs not too irritable, or we may use the best Pierre Richard's with sulphate of quinine or the biturate of iron and ammonium where the stomach would hardly stand acute disease. Farish's syrup of the phosphites is a very agreeable remedy and many people take it with benefit in the convalescent stages of this disorder.

Treatment of the Febrile Stages.

In these stages we must insist upon our patient keeping his bed for a day or two, and then keeping his room for a few days, more after a certain amount of recovery has taken place. He must have a light diet with milk, foods being generally all that can be taken, indeed, as the appetite is usually entirely gone. The bowels must be kept regular if perspiration is excessive promoted. Linseed + mustard poultices may be required to be applied to the front + back of the thorax, on account of swellings of bronchial or congestion of the lungs. If much tightness at the chest may use turpentine fomentations.

Antimonials are only suitable in the first few hours of the attack and not even then unless the patient has a
strong pulse and has been in comparatively good condition before the attack came on.

After the use of the antimonials for a few hours, or even from the first in weakly persons with a soft pulse, we may use the following:

R. Potassie Ricardii 3 1/2
Lig. Aurum Acetatis 3 1/2
Arum Nicot. 5 gr. 6
Northio Hydro-chlorate 1/3 gr.
Fruct. Solanum 3 1/2
Cypripedium 3 1/2
Aquae ad 30 gr. 8 1/2

Lig. One tablespoonful every two hours.

We may require to use the Belladonna if there be an account of the amount of the febrile movement.

Nourishing food and slight tonic remedies are always required as the chest improves and we may now begin the
usual local applications for the chronic condition of chest present, and use also the internal remedies as
described previously. Stimulants, alcoholic I mean, may be required in these attacks which are very
prostrating, but I never use them in the ordinary chronic condition of chest.

Sacro-iliac Rheumatism and Arthriticis require to be treated on ordinary principles but we must remember that the strength requires to be kept up as much as possible as the chest mischief has impaired the whole bodily functions.

The End.

Robert Bowes.
M.R.C. S. M. (1878)
11 Union Street West, Altrincham.
Certificate in regard to the points required for the M.D. degree of Edinburgh University

I certify that I shall have been, on the 1st of August of the present year, in general medical and surgical practice for four years, that I shall then have attained the age of 25 years, I also certify that the thesis, which is hereby forwarded to the Dean of the Medical Faculty of the University of Edinburgh, has been composed solely and entirely by myself, without assistance from anyone.

Signed

Robert Bowes,
M.R. C. L. M.
71. Union Street West, Oldham

Dated. April 21st 1885.