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Thesis

The Semeiology of Phthisis pulmonalis

the diagnosis of the tubercle 20
Haemorrhage in the Lungs



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In the discussion of the symptoms of Phthis
pulmonalis we do not intend taking into account
the inferences which might be drawn from the
particular diathesis of the individual under
inspection; it is far from our views however that
to distinguish the diathesis and their predilection-
cies is useless, on the contrary we believe the
doctrine worthy of the highest consideration, and
we doubt not but that in many cases lives may
be saved by taking advantage of the information
it yields; from the knowledge it affords us we may
be successful in procuring either complete pre-
vention of the actual disease or at least mitigate
it to a great extent.

To declare the presence of tubercle in the lung at
a very early stage often requires, on the part of the

physician, very close observation and no little amount of diagnostic powers; at an advanced stage generally the most careless can discover it, but it is evident that one who is able to diagnose it early has a very great advantage over one who does not, for often with appropriate treatment he will remove all traces of the disease, whereas the other would probably make the discovery too late for meeting with the same success.

The diagnosis of this disease then should not have reference merely to the presence of the disease but also to the amount present and the progress it has made. We shall consider it therefore in its three stages, first Miliary or crude stage, secondly the softening stage and thirdly the formation of cavities.

As regards the seat of tubercles, the left lung is undoubtedly a little more prone to its deposit than the right, the difference however is so slight as to be of no great use in diagnosis, in either lung the apex being its favourite seat. The first symptom characteristic of phthisis, if there is any, is variable, dullness on percussion, increased

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fremitus, feebleness or harshness of the respiratory
murmur and some others, have one or more of them
been looked upon as the first indication of the disease;
but the fact probably is that no single sign with-
out the concurrence of others, can at its commence-
ment determine the presence of the disease.

General symptoms of the first stage.
The patient finds his strength failing him,
there is observed a diminished activity of most of
the organic functions and a gradual loss of
flesh and weight, this last symptom may be
at first intermittent, but in a short time it be-
comes progressive notwithstanding hygienic pre-
cautions and absence of every known exhausting
cause. In some cases before, often coincident with
or soon after the body evinces this falling off from
the healthy condition, cough comes on with perhaps
some shortness of breath, often slight at first and
hardly observed, it is at first short & slight, occur-
ring only in the morning, perhaps when getting
out of bed or dressing and consisting of a slight
hack. In a short time it begins to occur more or
less frequently during the day and is excited
by very slight exertions, it is either dry or

accompanied by a small quantity of viscid or saliva-like expectoration. These symptoms may continue for some time, short or long as the case may be with but little variation, but sooner or later length of time depending on numerous influences, such as state of the weather, season, or perhaps depending on the supply of food; they are followed by greater and more general disturbances.

Slight febrile phenomena make their appearance, pulse is quickened especially towards evening or after meals, a slight chilliness is felt going down the spine once or perhaps twice during the day, followed by heat of skin.

Perspiration often occurs during morning and from very slight causes through the day succeeded by coldness. There is often an inability of bearing extremes of temperature, sleep is often disturbed and not followed by a sensation of full refreshment. patient gets gradually more rest:

less and experiences transitory pains in the chest especially about and beneath the Clavicles Quickness of breathing, is often one of the first indications of tubercle in the lungs - we can easily understand why this should be, for a very

slight deposit will interfere with the healthy function of the part which is affected, the normal quantity of air not having access to it, this necessitates a greater activity of the healthy portion in order that aeration of the blood be properly performed. Quickness of respiration has a marked relation to the rapidity of the heart's action and the severity of the febrile phenomena. The breathing may not only be quick but may also be attended by a slight dyspnoea and a sense of pressure on the chest. The severity of these symptoms will depend on the extent to which the capacity of the lung to receive air is interfered with by the deposit of tubercular matter and whether or not Congestion has occurred to any extent. If congestion occurs to a considerable degree, there is a tendency to haemoptysis which greatly relieves the patient for a short time. In chronic and latent states of the disease, neither dyspnoea nor quickness of breathing is observed as long as the patient keeps quiet and does not exert himself; but let such a person ascend

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a stair or a hill or unusually exert his
physical powers in any way and he will pro-
bably suffer to a greater or less extent.

We knew a medical student who when walk-
ing or engaged in any slight exercise felt
not the slightest inconvenience from his
breathing, but whenever he ascended the
stair to the dissecting rooms, walked
pretty sharply or even went to an over-
heated room experienced considerable short-
ness of breath and dyspnoea, we have
known him after such exercise expectorate
mouthfuls of blood; yet the physical
signs were at that time so little marked
that one of the best physicians in Edin-
burgh could not say that tubercle was
deposited. In a very short time however
after he was seen and examined,
phthisical symptoms became manifest-
under which he soon sunk.

An instrument called the Spirometer
was once used to some extent to measure the
vital capacity of the lungs for air
It is now certain that it will not afford

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is any sufficient evidence of tubercle in the
lungs, for many other diseases such as Em-
physema, chronic bronchitis and pleurisy
all greatly influence the amount of air
an individual can expire. It has also
an other objection viz: that probably no two
can breathe the same amount, even though
they be of the same stature; this may arise not
from difference in the capacity of their
lungs, but to a great extent depends on
the degree to which they bring the muscles
of forced respiration into action. It might
perhaps be used with some advantage in
large institutions for the diagnosis of incip-
ient phthisis; it would be a source of
amusement to children (if such they are) to try
from time to time the amount they could
breathe and have it recorded as age
advanced. The capacity ought to be on the in-
crease so that if the amount decreased or even
remained stationary for some time, it would
be looked on with suspicion - but of course
this applies to children only

Physical signs, of these we will consider first the evidence afforded us by percussion during the first stage of the disease. If after percussion we fail to discover any difference in the sonorousness of both sides of the Chest and neither being preternaturally dull, the probability is that there is no deposit of tubercle, this however is nothing more than a probability on which alone we ought never to depend; for we believe that tubercle may be deposited in the lungs even to a considerable amount without our being able to appreciate a change in the percussion sound provided the deposit be of solitary tubercles somewhat diffused. In children the percussion sound is much more resonant than in adults, this ought always to be remembered and our conclusions modified accordingly - Cases are on record of rapid and acute phthisis in children where percussion sound during life could not be regarded as morbid, and after death were found somewhat thickly studded with tubercles - also other cases in adults in whom the disease

was unequivocally manifested by other signs, when the percussion sound did not afford the slightest evidence of its existence. In the majority of cases, when the disease has existed for a length of time the solitary tubercles begin to enlarge beneath one or both Clavicles, they continue enlarging until they come in contact and form large masses; the tissue between the solitary tubercles is thus rendered unfit for its function, its contractility being done away with and consequently the percussion sound over the affected part becomes duller than the neighbouring parts - where the percussion sound may be normal or even louder than normal. Should it happen to be perfectly free from deposit and infiltration having occurred to a large extent - the air vesicles of the healthy part would be more than normally distended and consequently would give a more resonant sound. If the tubercles have been deposited to a slight extent in the surrounding parts, but conglomeration not -

having taken place the percussion sound over that part may be duller than normal but still much more resonant than over the part more affected.

In diagnosing whether the percussion sound is normal or not we must be guided to a great extent by comparing parts of one side to corresponding parts on the other, for even healthy lungs have not the same degree of resonance in every individual.

We now come to the Auscultatory sounds and in judging whether these be normal or diseased we must greatly rely on the comparison of corresponding parts on different sides perhaps even more so than in judging of the percussion sound. The changes we may expect to detect in the respiratory murmur are numerous, we will consider first simple weakness of the murmur. This may vary in intensity, the weakness may be so slight as to be scarcely appreciable or may be so great that the murmur is audible with difficulty. If tubercle is present, the weakness will probably soon give

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way to some other morbid symptoms - we must remember that it is not impossible for a deposit to take place on both sides so that in such a case would or might have similar sounds on both sides, but - this may be looked upon as a rare occurrence - for the deposit is seldom so equal on both sides that a difference cannot be made out.

Weakness of the respiratory murmur is far from being diagnostic of tubercle in the lungs; for we may have it in other diseases such as pulmonary congestion & inflammation, bronchitis, pleurisy &c.

Prolongation of the expiratory murmur may be the only morbid symptom heard or what is oftener the case may be combined with other abnormal conditions. It is not very easy to say when the expiration has become the least prolonged beyond the confines of health as in this respect different individuals are differently constituted. Generally speaking the inspiratory should be about three times the length of the expiratory murmur; but some people have a prolonged expiratory

murmur quite in accordance with health. If the expiratory equals the inspiratory murmur in length or comes very near it we may in that case suspect disease and if the expiratory is the longer of the two we may be almost certain that some morbid change is going on in the lung - but from this alone we cannot justly conclude that it is tubercle.

Harshness of respiration, this may be the only abnormal condition which the ear can appreciate or it may be associated with weakness of the respiration, we find that the true vesicular murmur has lost its purity and becomes harsh of a dry and blowing character. If with harshness there are other symptoms which enable us to detect tubercle and if by appropriate treatment the case turns out favourably, the harshness is gradually done away with and the soft vesicular murmur again appears, but if the case advances the harshness soon comes to concur with or be modified by other symptoms. The breathing may be jerking in char-

acter, when it is, so we may hear the vesicular murmur for a moment, it then suddenly stops - but the stop is momentary, for it has scarcely stopped when it recommences, the murmur may be harsh and yet the same phenomena capable of being detected, a succession or repetition of which constitutes jerking breathing which may ⁱⁿ it turn subside or become masked by other symptoms. We must remember that jerking respiration is heard in other morbid conditions of the lung as well as in ptithosis, such as incipient pleurisy, asthma and pleurodynia. It is said to be also heard in some cases of hysteria.

Tubular breathing is another important sound - it may be heard over certain parts of the chest in its healthy condition, but when heard below the clavicles in the most common seat of tubercle it becomes very suspicious when we have ~~abnormal~~ ^{normal} tubular breathing we may be sure that one or more

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of the bronchial tubes are partially obliterated
by the deposit - we distinguish it by its loud
dry and blowing character, often the
disease is pretty far advanced - indeed
generally such is the case before tubular
breathing is heard - and even a considerable
amount of tubercle may be deposited occasion-
ally and no tubular breathing be developed,
for as has been already said it is necessary
that one or more of the bronchial tubes
be involved. If heard we must ascertain whether
abnormal or not - and also remember that
it is heard in many cases of pleurisy in
pneumonia and abnormal dilatation
of the bronchi from any cause.
Fermetus is a sign on which some depend
a good deal and may be of great use
in cases in which other symptoms are
not well marked. When tubercle is deposited
in the lung to any considerable extent and
sometimes even when there is very little
of it, fermetus may be developed. It
consists of a peculiar thud or vibration
communicated through the condensed lung

to the hand when placed flat over the chest. There are however certain precautions to be attended to before we can place much confidence in this sign unless indeed it be exceedingly well marked. The thickness of the thoracic walls for instance will make its intensity vary in different patients, being more highly developed in those whose thoracic parietes are thin and void of great muscular development and less marked in those who have a large coating of fat or great muscular development. We must not forget that it is met with ~~to a~~ a slight extent in most people whose lungs are perfectly healthy and that it differs greatly in degree in different individuals. It is generally more strongly exhibited throughout the right than the left lung especially in the infra clavicular region, so that we may generally conclude that the left is diseased if the fremitus is more marked in it - and if it is equal in both it excites our suspicion. This method of diagnosis though not very certain - we think ought to be taken advantage

of as it is so very easy of application, all that is necessary being to lay the hand lightly over the chest and desire the patient to speak.

There is yet another sound elicited from a tubercular lung in the first stage as well as under certain other conditions, on which great reliance has been placed by some in the diagnosis of pulmonary consumption, we allude to bronchophony.

Before bronchophony is abnormally developed to an extent worthy of relying on it further than to confirm other symptoms, the tubercular deposit must occur to a considerable extent; it must at least involve one bronchial tube, and the part of the lung between the affected tube and the thoracic wall must also be condensed; being dependant on the vocal sound as modified in the bronchi transmitted to the ear. Such conditions however are necessary ^{only} for its complete development. Bronchophony may be heard in most people with healthy lungs - in front over the sternum and above the clavicle and in the back between the scapulae, being generally ^{more} distinct

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over the right than left side, we find that when bronchophony depends on condensation of the lung that tubular breathing is generally present; this can easily be understood seeing that the production of both sounds depends on interference with the calibre of the bronchi; it may however exist without the concomitance of tubular breathing.

Subcrele may undoubtedly be present - and by other symptoms be rightly diagnosed while morbid bronchophony is absent, this shows that its absence must have very little influence on our decision and that its proper use is as confirmative of other symptoms. We may therefore conclude that though bronchophony be greater on the right side, yet that probably it is not phthisical; that if the same on both sides it is slightly suspicious and if more distinct in the left, the probability is that it is diseased.

Most of the physical signs which we have yet considered are manifested generally during the first half of the first stage of phthisis, but we have certain other signs not developed

until towards the end of the first stage; at this period certain rales become heard one of which is said to be almost pathognomonic of phthisis pulmonalis. Dry crackling is the most important of these and is probably per se the most diagnostic sign of phthisis during the first stage. It is heard chiefly during inspiration and consists of a number of crackles - sometimes only one or two at other times more, which are sharp and dry. Whenever it is heard we may take it as an indication that the second stage is not far off. We must remember that it is not heard in every case of phthisis pulmonalis. Another sign heard chiefly during the latter period of the first stage is subcrepitation; it consists of a moist and bubbling rale. There are few cases of pulmonary consumption which fail to manifest this sign, but its importance is not in proportion to its frequency, for we have it in cases of simple bronchitis. If we find that subcrepitant rales exist in the most common site of tubercles, namely in the apices of the lungs and especially if conjoined with this it differs in amount

on both sides, we will seldom be wrong in declaring it a case of tubercular deposit as pure bronchitis is generally equally diffused over the whole of both lungs - and should a portion alone be affected the most common site is the base

There are also some other signs but they aid us but little in our diagnosis inasmuch as they are heard principally in other diseases - these are sibilant and sonorous rales. Murmurs in the subclavian and pulmonary arteries, also morbid extensions of the heart sounds have sometimes been of use in the diagnosis of phthisis, but it appears to us that these are so common in other diseases as to render their application very limited

How is the deposit if diagnosed, diagnosed to be tubercle and not cholesterol or plastic

Second Stage

The change from the first to the second stage may be so rapid as to be pretty well defined or it may be so slow and gradual as to be scarcely appreciable. The second stage may be developed in some parts while the more recently deposited mass are still in the first so that we may have both stages present at the same time. When this stage commences the cough becomes more severe, being greatly excited by the softening matter passing away and irritating the passages. The slight-rigors or sense of chilliness as if cold were poured down the spine is more marked. The cutaneous heat in the evening and after meals is more marked. These may not present the same severity every day - often alternating. The respiration becomes more hurried - the lungs requiring to inspire oftener on account of its diminished capacity, and there being a relation between the rapidity of respiration and heart

action, we find the pulse also accelerated. The stomach becomes disordered and the food is improperly digested and as a necessary consequence we find the patient getting emaciated and the muscles becoming flabby. From the improper assimilation and aeration we may conclude that the blood is not altogether normal in consequence of which the nervous system is improperly nourished as well as the other tissues and as a result we have languor and no tendency to either mental or corporeal labours.

From the restlessness and consequent exhaustion of the night there is pallor of the face in the morning, but from moving about, taking food and other exciting causes feverishness returns and towards evening the hot skin and hectic flush returns. These causes are not necessary for the recurrence of the feverish symptoms, but they must have some effect more or less.

Pains which are sometimes experienced during the first stage in this stage become more decided and more frequently felt. In the first stage it may amount only to a slight uneasiness, in the second stage however when manifested as it generally is, it is distinctly felt as a pain which is dull or aching in character (generally something the same as rheumatic pains in the extremities) and in most cases is referred to the apices either in front or behind - it may also, but less frequently be referred to the side - to some portion of the back or to the vicinity of the sternum. The pain has not this dull character in every case, it is sometimes sharp and acute and in such cases is usually inflammatory action is set up and has extended to and involved the pleura which leads to pleuritic adhesions.

The sputum instead of being colourless, slightly greyish and frothy - either becomes puriform and contains shreds of blood or presents specks of opaque

matter of a pale yellow colour. These specks gradually increase in number and in size until they form curdly patches surrounded by the transparent portion of the expectoration. The increased sputum is often accompanied with more frequent and more severe cough.

Although the general symptoms of phthisis may show a considerable advance in the progress of the disease especially if the case has been attenuated from its commencement, yet there is nothing definite about them which would enable even a very experienced practitioner to assert with certainty the existence of the second stage. This indecisive character is amply atoned for by the preciseness and certainty of the physical signs - which we shall now though shortly - consider as most of them consist chiefly of a higher degree of development of those already considered as belonging to the first stage. We find for instance that subsepiant

roushus is more frequently met with and more distinct in character. The same might be said of tubular breathing bronchophony and all the other symptoms of the first stage. These symptoms will also generally be heard over a larger area more of the lungs being by degrees involved. Percussion will show a much more manifest dullness and strongly partakes of the feeling of resistance. The chief sound and one on which we may generally depend is the Moist Crackling Roushus - when this is distinctly heard we need not hesitate to affirm the presence of the second stage. It consists of a moist, sharp, clicking sound - generally heard during inspiration alone - but not exclusively - the Click may sometimes be heard three or four times but more commonly it is heard only once or twice. It must not be confounded with subcrepitant roushus which it somewhat resembles but differing

in as much as the one has a bubbling
 character, the other a chattering. The dry
 crackling Roushus of which we spoke
 among the symptoms of the first stage
 always passes into the moist if the
 disease advances - but it would seem
 that the moist rale may sometimes
 be developed without the presence
 of the dry. It is not very uncommon
 in this stage to have a rubbing
 sound over the seat of tubercle but
 over this part pain is not generally
 experienced. This sign must be taken
 only in its relation to other signs
 as idiopathic pleurisy may attack
 the part. Generally in this stage but
 sometimes sooner and sometimes later
 of the thorax has been previously well
 formed, it is noticed to begin to lose
 that character, instead of being round
 and prominent it becomes flat -
 The clavicle become exceedingly pro-
 minent depending on the falling
 away of the previous bulk of the

lung, in close contact with which the ribs keep. The shoulder also appears prominent and falls forward. The apex of the lung are not properly dilated and as a consequence the gentle heaving noticed in healthy respiration is absent and if forced respiration be had recourse to the apices seem to be raised mechanically in a mass from below more than by the gradual distension of the pulmonary tissue

Third Stage

Constitutional symptoms, most of them consist of an aggravation of those of the preceding stage so that it is unnecessary to re-enumerate them. One of the most marked phenomena of this stage is the profuse perspiration - sometimes diarrhoea - and occasionally these alternating with each other

These assume a colloquative character in consequence of which this stage has been called the Colloquative stage. The perspiration and diarrhoea produce great and rapid emaciation, the feet and ankles often become oedematous. If the patient is not to recover, during the last few days the mouth tongue and throat become aphthous in some cases there is a slight delirium after which the patient -
 in R

Physical signs of existing Cavities as first at least consist to a great extent of a greater development of those previously given, but when the Cavities attain a considerable size new signs are developed.

The percussion sound of Cavities may consist merely of great dullness or on the other hand it may be the reverse - Resonance - The most common is the wooden percussion sound coupled with great inelasticity of the walls

When the cavity is large and situated near the thoracic walls, or the portion of lung intervening between the cavity and the wall is indurated a markedly clear sound is developed which has been termed amphoric. It should be remembered that cavities may exist in the lung and yet the percussion sound be very nearly normal, this occurs when the dullness produced by the condensation is neutralized by the amount of resonance produced by the cavity - this probably however occurs but rarely - When the cavity is of considerable size and communicates freely with the bronchial tubes - Cracked pot sound is developed - in endeavouring to elicit it the patient's mouth should be widely open and turned towards the percussor's ear - generally it is heard only once at a time - but sometimes may be heard several times in succession though feebler than at first. Occasionally it is difficult to distinguish.

between the dull wooden sound of con-
 densation and cracked pot sound, but
 the former may be known by its greater
 resistance and being void of the ringing
 character of the latter. This sign
^{may} ~~should~~ be considered quite pathognomonic
 of Cavities (in the adult). In child we
 must be cautious in pronouncing the
 presence of Cavities as probably cracked
 pot sound may be produced in cases of
 bronchitis or emphysema.

Auscultatory sounds of Cavities, of the
 cavernous breathing is important and
 is known by its peculiar hollow and
 metallic qualities, it sometimes re-
 quires care to distinguish it from
 intense bronchial breathing - it will
 often assist the diagnosis to make the
 patient cough or take a deep breath.
 Cavernous breathing may sometimes be absent
 and at other times present in the same
 individual owing to the blocking up
 of the cavity or bronchi leading to it, so
 that if cavity be suspected and not dis-

covered upon full examination it will be necessary to make further examination before certainty can be arrived at as to its presence or absence. Cavernous veins are also important, they may vary greatly in character in different cases according to the amount and consistence of the fluid. If amphonic resonance is developed on percussion amphonic breathing may generally be heard.

Pectorilology is an important sign but unless it is perfectly developed it ought not to be relied on.

We shall consider yet two other symptoms of great importance in the diagnosis of phthisis pulmonalis viz Cough & Haemoptysis - the former of which we have hinted on before - but from its importance deserves a separate consideration. Cough is often the first symptom of phthisis and is therefore of great importance, it may be so slight as to escape the attention of both the patient and his friends and may occur in the morning only

In meeting with such cases we must pay attention to the breathing and character of the cough. If the cough continues for a considerable length of time without expectoration it becomes very suspicious. It should be remembered that the cough may disappear for some time and yet be phthisical but on exposure to an exciting cause it will again recur.

Phthisical cough should not be confounded with others arising from totally different causes - we must distinguish it from the cough of common Catarrh with which however it cannot be easily confounded as the latter can generally be traced to exposure to cold followed by hoarse voice - expectoration at first colourless and frothy but soon turning mucous or mured - puriform - It is more apt to be mistaken for that of bronchitis - but can be distinguished by the presence or absence of the physical signs of bronchitis -

It cannot easily be mistaken for that of Influenza or whooping cough - their characteristic symptoms

being a sufficient diagnosis.

Gastric Cough has some resemblance to the tubercular but is louder and more paroxysmal in character and is accompanied by dyspeptic symptoms such as acidity of stomach flatulency and chorlous tongue. In distinguishing between them it should be remembered that dyspepsia is often present in unipneumonia. If it does not yield soon to appropriate means of treatment it becomes suspicious.

Cough depending on hepatic affection might at first sight be confounded with the tubercular but they are easily distinguished by paying attention to the general appearance of the patient - State of stomach and bowels. We should not forget that intestinal worms may excite cough and that the debility and emaciation with which they are often attended is apt to lead us astray. We also see in young females of an hysterical tendency a nervous cough - it is paroxysmal and the attacks protracted - of a sharp character and without or with merely a slight watery expectoration.

Copland 18 nest. males & 3
nest. females have no hatching

Haemoptysis is often the first symptom
 which excites the suspicion of the patient or
 his relatives but as it accompanies many
 other diseases - we cannot say tubercle is present
 in every case in which it occurs. It may be pro-
 duced for instance by pulmonary congestion
 or from structural lesion of the heart. The
 quantity of blood expectorated varies from
 a teaspoonful to as much as a pint
 or even more in most cases it amounts
 to two or three mouthfuls. In the beginning
 of the disease large quantities are often brought
 up with varying emissions - but at an
 advanced stage if haemorrhage is present it
 is generally continuous until the patient
 sinks. According to Louis haemorrhage
 occurs more frequently in females than in
 males & The haemorrhage generally succeeds
 bodily exertion such as running - ascend-
 ing heights or and long and loud speaking
 when it occurs during or after a cough
 or shortness of breath - it should be viewed with
 great suspicion - we must guard against
 being imposed upon by people who

drinking blood from other animals and then
mouth and spit it as their own - a good
Case of which is related by Dr Bennett -
The time for giving in the Theses being ter-
minated we are unable to give but an
 exceedingly imperfect sketch of Haemophytosis
in *phthisis pulmonalis* -