No. 474

AN

# INAUGURAL DISSERTATION

ON

*Phthisis Pulmonalis,*

SUBMITTED TO THE

President, Board of Trustees, and Medical Faculty

OF THE

# UNIVERSITY OF NASHVILLE,

FOR THE DEGREE OF

DOCTOR OF MEDICINE.

BY

*John P. Westbrook*

OF

*Mississippi*

1859

MEDICAL JOURNAL OFFICE,
NASHVILLE.

To

W. R. Bowling M. D.

Whose many moral excellencies and splendid intellectual endowments entitle him to a place in the heart of every Student of Medicine and a prominent niche in the Temple of Fame, the following treatise is respectfully dedicated by

The Author.

## Phthisis Pulmonalis

Pulmonary consumption is a hereditary disease; or it rather arises from a scrofulous diathesis, called by Laennec, the development in the lungs of a particular species of accidental production. By accidental production, he means that predisposition to consumption which is inherited from consumptive parents, or the existence even of what has been called tubercles in the lungs.

It is a singular fact, that of so many eminent physicians, who have made consumption a particular study should have died of this disease. Laennec, who by indefatigable and deep researches, has been more explicit in the nature and history of

this disease fell a victim to it; which was also the case of Armstrong, and Lincoln of our own country and many others.

A full and complete discussion of this very important topic would fill volumes, which is not to be expected of the one writing. It is merely his intention to give in as comprehensible a manner as he is able, such information as is most worthy of consideration, and to investigate the history, nature, and treatment of the disease, if we may be allowed to call them such.

Dr Hood says, if it were a rule that our knowledge of any subject was increased in an Equal ratio with the quantity of matter written upon it, and put forth to the world, it would follow, that Phthisis, the great scourge of this Country, would be the disease whose causes,

effects, and treatment, were the best understood. But this is not the case; on the contrary, our knowledge of the true pathology of tubercular disease is very imperfect, our treatment having no basis, being merely empirical, and most unsatisfactory. Numerous have been the attempts to elucidate the pathology of tubercular disease, and although they have failed fully to do so, yet much light has been thrown on some of its chief features. There are several writers on this disease who have advanced some very speculative notions in reference to it; yet many contributions must be made, and those already received, must be collected and confirmed, in order that benefit may be derived from them, and the desired object obtained.

Prof Liebig has advanced the opinion that Phthisis is an excessive oxydation of the whole body; Setting out with this idea, he explains all of its symptoms, and different plans of treatment adapted to it.

He makes the depression of the vital powers brought about by what are generally conceived to be the remote causes of the disease, by most physicians, the first stage of the disease; or its origination deposition of tubercle; or what is regarded as the proximate cause- the second stage.

Dr Wood gives the idea, that tubercle is an effort of nature to save the patient, on account of its blocking up more or les of the pulmonary tissue, and so diminishing the capacity of the lungs for air; in other words by its preventing so large a supply of oxygen to the economy.

He now says, when nature wishes to lower the amount of oxygen with respect to the frame, when it is not strong, to withstand its invasions she has her choice of three modes of acting; Either to shut up part of the lungs acting as the door through which it enters; to diminish the number of blood globules, or to increase the quantity of bile.

It is obvious that either of these will produce the desired effect. Of the changes produced by three most marked diseases, Consumption, Chlorosis, and Scrofula, which may be taken as types of all others, be examined, it will be found that in the first the amount of oxygen is lessened by the filling up of the lungs; in the second by decreasing the number of globules, and in Scrofula it has been proved that the

functions of the liver are morbidly active, the liver being hypertrophied.

In some diseases these three resources are combined; in Phthisis for instance, the scrofulous liver is frequently met with the blood globules are diminished, and last, the air cells are shut up by tuberculous matter; nature has other means of lessening the capacity of the lungs by solidification.

These are the processes which nature makes, in her effort to effect recovery, and they appear to indicate further progress of depraved nutrition.

From the present knowledge of the functions, that the different changes of the blood discs produce in the assimilation and nutrition of the system, it almost induces one to believe in the theory

spoken of above.

But the question is whether or not can this theory ever be brought to bear in a practical point of view; if this is the case. it seems more than probable that the long hidden mystery on this point would be dispersed. Establishing the fact then that these blood discs or globules, are essentially necessary in the nutrition of the body, nothing can be more palpable than that the abstraction of them would still further impair nutrition, which is generally in a low condition in Phthisis.

It is the usual practice in Chlorosis to regenerate the lost red corpuscles.

Another means is given to ward off the too rapid oxydation of the body by increasing the activity of

the liver and consequently the secretion of bile; but although the liver be enlarged in Phthisis, as it is frequently is, this enlargement coupled by an increased production of bile.

Is it not rather reverse that the secreting cells of the liver, being engaged with fat or oily matter, have less power of separating the constituents of the bile? But little faith can be placed in Liebigs ideas of excessive oxydation, and the deductions raised in his treatise, they can be made to look very plausible on paper, but experience has made us despair of all hopes of success in his train of reasoning.

The same hypothesis are employed to found a plan of treatment in Phthisis; all its indications are reduced to two.

First to lessen the relative quantity of oxygen and secondly, to strengthen the vital powers. The principle upon which the author of this acts, is increasing the quantity of bile in order to saturate more than the ordinary quantity of oxygen, thereby diminishing its amount with respect to the system and arriving at the same end by stimulating the system itself, both to withstand the invasion of the gas, and assimilate more vigorously. Naphtha has been used with the view of assisting the bile to saturate the oxygen, but it has not yet been fully tested with respect to fulfilling this view. Although this part of science has almost remained stationary as it were, in respect to effecting radical cures.

yet pathologist have not been idle in their researches in the primary causes and effects in this disease. It is due to them for our present knowledge of the change that the body undergoes in the production of what is generally termed tubercle. In respect of the species described by Bayle under the name of granular, ulcerous, calculous, cancerous, and with melanosis. he remarks, "that the first is as mere variety of the tuberculous. The second is the partial gangrene of the lungs formly discribed. and the three others others are affections which have nothing in common with tuberculous Phthisis. Except that they have their seat in the same organ.

The progress of development of tubercle has been described by him in a much

more exact and complete manner than by any who preceded him.

Tuberculous matter may be developed under two principal forms. that of insulated bodies and that of interstitial injections or infiltrations.

Each of these presents several varietas, chiefly relative to the different degrees of development. The insulated tubercles present four chief varieties which are denominated Miliary, crude granular and encysted.

Whatever be the form in which the tuberculous matter is developed, it presents, at first the appearance of a gray semitransparent substance. which gradually becomes yellow and dense.

Afterwards it softens and gradually acquires a fluidity nearly equal to that

of pus. it being then expelled through the branchia, cavities left known by the name of ulcers of the lungs. but which Laennec designates tuberculous excavations. Miliary tubercles is the most common form under which tuberculous matter appears in the lungs.

The tubercles in this variety resemble small grains, they are of a gray colour, and semitransparent, and even sometimes transparent and colourless and a consistence somewhat less than that of cartilage; the size are various, their shape roundish at first sight, is found on inspection to be less regular. when examined closely with a lens, they even sometimes appear angular and of a rough appearance, resembling calculus very much in their appearance.

They adhere intimately to the pulmonary substance insomuch that they can not be detached without bringing with them some portion of it. Laennec says they grow by intussusception and become thus united in groups; before this union however a small yellowish opaque spot appears in the centre of each tubercle.

Andral says that the yellow spot does not always appear first in the centre but sometimes even on the surface; very often the tubercles coalesce before their whole substance undergoes the change just mentioned, and in this case when one of the masses formed by the union is divided, we can easily recognise the small yellow points indicating the centres of the respective tubercles and the zone of gray

unchanged matter surrounding these.

After a certain time the conversion of the whole into this yellow matter is completed, and then the group only constitutes a single mass of a whitish yellow colour, and of a texture somewhat less compact, and moister than that of cartilage, it is then said to constitute the crude tubercle.

When the miliary tubercles are a little distant from each other they frequently reach this stage without coalescing, and while their size is very small. When the tubercles are very few in number, for example, a hundred only in each lung, they sometimes acquire the size of a cherry stone or even an almond, they very seldom exceed this last size, and the larger tuberculae

masses are usually either the product of several united, or the tuberculous infiltration. In general we consider it a sign that the isolated tubercles have originated in a single point or granule, when we find them retaining their original ovoid shape.

Bayle has discribed granular tubercles and given their production and formation more fully in details and more considered by him, on account of their very peculiar character, different from that of tubercles. They differ from common tubercles by the uniformity of their size their want of colour and their transparency.

They are commonly disseminated in countless numbers over the whole extent of the lung, or a coalesce in groups.

Sometimes however from their vast number and proximity to each other they constitute solid masses. but when these are cut into we find granulations all distinct and separate from each other by cellular substance which is either quite sound or only slightly injected with semen. Laennec considers Bayle mistaken in considering these granulations as different from tubercles. and still more in regarding them as accidental cartilages.

Had this latter opinion been well founded, we should sometimes see them becoming ossified which is never the case. but they do sometimes assume the properties of calculus which has already been mentioned in the preceding pages.

The development of tubercles in other organs presents also a series of facts sufficient to prove, that in their first stage and near their origin they are always semitransparent or of a slight gray colour. They are sometimes found on the surface of the pleura and peritoneum of a colourless and quite transparent and at others of a grayish colour. The lungs are not the only organs on which these tubercles may be found. the Spleen intestines and various other parts are liable to be invested with them, independently of the different Stages above mentioned. accidental circumstances may change their colour. Jaundice may render them of a yellow hue especially when they are situated in the liver.

In treating of the causes of Consumption we arranged cases in three groups first those arising from local disease. Second those arising from constitutional disorder, or hereditary predisposition. without any known previous local disease. and thirdly those arising from acquired Scrofulous or Phthisical Constitutions. In the two last. Constitutional causes are recognised, and in the first the local disease may act not only by developing in the lungs. lesions which tend to run a phthisical course. but also by injuring the functions generally, so that hereto. a Constitutional Cause becomes added. In no case therefore should we exclude constitutional treatment from a prominent place in the management of Consumptive patients. It is wise local disease

has been the chief cause that we have the best chance of curing Consumption and more so in propotion as the local lesions are limited and the constitutional powers little impaired. The chief indecation in the treatment of tuberculous disease are to diminish those local irritation and congestions that lead to the formation of induration or tubercles. To correct the condition in the system which degrades the nutritive proces and disposes to the disposition of imperfectly organized products, to promote the removal of those already deposited, and to treat troublesome symptoms and accidental complication. The symptoms of the early stage that of the induration. are those especially of vascular irritation. hence this is

the period at which antiphlogistic and counterirritant remedies avail most generally bloodletting of from four to Eight ounces, repeated every week or ten days, were highly recommended by Morton Dover, Heathgill and more recently by Dr Hosack of New York, and Dr Cheyne of Dublin. the practice is still much pursued in this country, and if judgement be used with regard to vascular strength of the subject, it is one of the most important agents that can be employed.
We would however with Sir J Clark limit its use to cases in which there are marked signs of plethora or pulmonary inflamation congestion or hemorrhage, and in other cases, and subsequently prefer moderate local bleeding by

leeching below the clavicles.

The latter measure would be repeated when ever an increase of pain or cough with a bloody tinge in the sputa dulness or percussion and irregular respiration, or rhonchi under the clavicles indicate a congested state of the lungs about the suspected induration.

In cases of greater debility, or where there appears to be a defect of blood in the system blisters or counter-irritants are more suitable than blood-letting. One of the best agents of this kind is a saturated solution of tartarized antimony to be rubbed in below the clavicles twice a day, until a papula or semipustular eruption is produced

The friction should be renewed from time to time when this eruption dies

away, as the symptoms may require it. Hydriodate of potash is sometimes added to render the solution more irritating and perhaps of acting more favourably on the constitution by being partially absorbed. Or Croton oil pure or mixed with olive oil according to the susceptibility of the skin may be advantageously substituted. Dr Marshall Hall has recently extolled very highly the efficacy of an alcoholic lotion in the treatment of consumption. He considers that checks the disposition and retards the softening of the tubercular matter. One part of pure Alcohol is mixed with three parts of water. It is used tepid at first and afterwards of the temperature of the atmosphere. It is applied in small quantity every

five minutes. Dr Hall says, "It is by no means my wish to laud this remedy beyond its just value, but I have no hesitation in asserting that it possesses a power in checking the progress of the deposition and softening of tubercles in the lungs, beyond any other which I have ever tried, and the number of patients who have recovered from incipient phthisis under its use and who after many years are still living and in apparent health, induces me to express myself in strong terms in regard to its extreme value."

The efficacy of internal sedative or antiphlogistic remedies is more doubtful. Except so far as they tend to diminish the irritation of the cough and pain.

This digitalis Hydrociane acid and calchicum may in some cases subdue a temporary vascular excitement and thus give relief. but the utility of continuing them long with the view to reduce the pulse permanently may well be questioned. for they may thus do more damage to the constitution than give relief to the irritation.

In case of increasing bronchial parenchymatous inflamation, or of fever. Salines antimonials and other means of increasing the fluid secretions will be proper as usual;

But, are there no remedies that will promote the removal of the indurations themselves? We can answer this, but doubtingly. but if we may be guided by analogy. we might be led to

hope that the removal of morbid deposites, when recent may be facilitated by the aid of certain medicines,

Thus we see tumours of various kinds, Enlarged glands and depositions in the joints, reduced under the use of Mercury, Hydriodate of Potash and Sarsaparilla, the influence of these remedies in promoting the absorption of the simpler products of acute inflamation is scarcely doubted, and arising as the lesions of phthisis, occasionally do from acute inflammations, and presenting various gradations, which remove them only step by step from its products, it would be unreasonable to assert without sufficient evidence to prove it, that they are wholly beyond the reach of such medicines.

(Glenn Decoris Aselli) much has been

said of the effects of Cod Liver Oil as a remedy in Phthisis and from the statistical accounts given of its success in the treatment of phthisis, has given flattering hopes to those who labour under this sad disease and also to the speculative mind who wishes to find a remedy which has been so long unsuccessfully searched for.

It has been remarked by some that the Cod liver oil acts much more energetically in the winter than summer. This perhaps is owing to the digestive organs, being more capable of performing their functions in the winter, allowing the medicine which is more easily taken up by them, at that time, to act in the peculiar way in which it does. It has so far superseded all the remedies which are used at this time, that it is the one

now most generally relied upon.
And certainly has relieved many when
taken in the incipient stages of phthisis
and many cases have been reported as
cured when even cavems have been formed
in the lungs. Acetone or wood naphtha
has been spoken of as a remedy in
phthisis by Dr Hastings of London.
but wether or not it has any peculiar
curative properties in this disease. I can
not speak positively. it is said to relieve
the distressing diarrhoea which accom-
panies this disease. Even in accomplishing
this point it is worth notice as a remedy.
For in fulling this indication it cer-
tainly will take precedence of opium
without the deleterous effects of the
latter. Change of Climate and travelling
has been recommended by almost every

writer, and no doubt in the incipient
Stages by travelling to a warm climate
in connection with the means we have
of eradicating the disease, a great
patients can not only be relieved,
but I firmly believe might be cured.
(Mechanical Means) One, and perhaps
the most common of all causes in the early
development of consumption, is stooping
forward, both when sitting and walking.
This may appear to the superficial ob-
server a small affair. But I can
assure them it is not so. Man was made
upright. Persons who sit and walk
erect throwing back the shoulders and
projecting the chest forward rarely have
consumption. Indeed some have doubted
a person has ever been found in consump-
tion who uniformly maintained and erect

posture. By stooping the circulation is obstructed. the chest cramped. the space which should be occupied by the lungs lessened. The aborigines of this country so remarkable for maintaining an erect posture. and being straight when sitting and walking. are said seldom to have consumption. Any person can maintain this position by a little effort. If he cannot do it without he should use mechanical means to accomplish it. When consumption threatens or in its incipient stages the lungs shrink and their structure becomes condensed. The chest invariably becomes narrowed. The disease usually begins at the top of the lungs under the clavicle or collar bone. where they are the most easily

obstructed because they have the least play. Now if the chest be expanded and the lungs rendered voluminous the disease may be avoided. Much more might be said respecting the mechanical means of averting consumption and for relieving debility, but these must suffice here, as information can be obtained from those who have disease of the chest their especial study. It is for medical men to make continued researches in the Pathology and treatment of this disease. We have the field open before us and I have no doubt that at some future time, the whole class of tubercular disease will be arrested. Olenum Leoris Asselli. Et Phosphas calcis. These last has been more recently another addition to the last remedy.

spoken of. and one which perhaps when it has been more thoroughly tested and experimented with, may perchance be the long sought for desideratum.

But as it is in its infantile state of existence. if I am permitted so to speak. yet there remains to be explained the various changes and modifications which it effects in its papage through the system. Prof Stone of New Orleans has for some time been experimenting with the Phosphate of Lime in combination with the Cod liver oil in Scrofulous diseases connected with pulmonary disease of the lungs and other depraved States of the System, the success which he has had in these cases is worthy of much consideration. It was suggested in an Epay in the London lancet an

the Physeology and Pathology of the oxalate and Phosphate of Lime, and the various relations and functions which they effect in the formation of cells. The conclusion of the author seems to have been based upon careful investigation and chemical research, and the use of this remedy. The investigations that have been made, go to prove, that in man as well as in vegetable and inferior animals Phosphate of Lime, as well as albumen and fat are indispensably essential for cell formation and Considers that many of the Pathological States of the System are dependant on a deficiency of this salt. The affections for which it has been tried and recommended, are ulcerations, dependant upon a

general dyscrasia and not a mere local affection. Infantile atrophy, in those suffering from rickets and consequent diarrhoea and tuberculous affections. disease of the lungs, particularly in the early stages. This subject as yet is one of speculation but it most assuredly deserves our particular attention until it has been fully investigated. for it is in this way that may of our most valuable and efficient remedies have taken their origin.
Medicine. considered as a Science is daily advancing and we have hopes that in time this disease will be as effectually relieved as any other.