

T H E S I S.
SYPHILITIC AFFECTIONS OF THE LUNG AND
THEIR RELATION TO PHTHISIS.

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THESIS.

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CHAPTER I. OBJECT OF THESIS.

The object of the present Thesis is to show that many cases commonly considered to be due to Tuberculosis of the lung are very often either entirely due to syphilitic conditions or associated with syphilis and that this fact should be taken into account not only in the diagnosis but also in the treatment of these so-called tuberculosis cases.

CHAPTER II. IMPORTANCE OF THE PROBLEM.

As will be seen later from the conclusions detailed in Chapter 15, I have formed the opinion that some attention must be given to the possibility of the presence of syphilis in dealing with patients who may in the ordinary course be considered as suffering from uncomplicated tuberculosis. While only a limited number may prove to be really syphilitic or to have both syphilis and tuberculosis, still the importance of the possibility cannot be overestimated, and demands the closest attention of the physician, more especially of the tuberculosis medical officer. Not only so, but it demands the close attention of local health authorities and of the central bodies concerned with health matters.

As regards diagnosis it would appear to be advisable to include the Wassermann reaction among the routine clinical methods to be adopted in any suspicious case. Under present conditions, this can be carried out with very little trouble even at the tuberculosis dispensary, because schemes for dealing with venereal disease are now in operation in all the important centres, and these include laboratories equipped and staffed for the carrying out of the Wassermann/

Wassermann reaction along with the other bacteriological tests connected with venereal disease.

Our conclusions from the point of view of prognosis may also have to be modified in these cases which prove to be entirely or partially syphilitic in nature and it may be possible for the physician to give a much brighter opinion as to the future prospects of such cases. Then, naturally, the form of treatment required will be quite different, unless both tuberculosis and syphilis are present when probably both sanatorium and anti-syphilitic treatment will be indicated.

While the above points are of interest to the physician and also of course to the patient in so far as prognosis is affected, the matter is of no less interest to those concerned with the administration of health functions. The cost of the control of tuberculosis in this country is enormous. The expenditure is much greater than for any other disease, and is probably as much as the total expenditure on all the ordinary infectious diseases put together. Undoubtedly, a certain amount of good is done, but there can be some question as/

as to whether we are getting an adequate return for the tremendous amount of money spent. Personally, I do not think we are. The tuberculosis dispensary is not a costly institution to maintain. It is a most valuable part of the machinery for dealing with tuberculosis and certainly pays its way. The sanatorium and hospital are, on the other hand, very costly to maintain and while undoubtedly necessary in the present state of our knowledge, they do not give adequate return for the money disbursed. Any factor which will reduce even to a small extent the number of cases requiring sanatorium treatment must be closely examined and similarly, any form of treatment which will tend to shorten the period of residence in the sanatorium must also be fully investigated. If a diagnosis of syphilis and not of tuberculosis is established, in-door treatment of any kind will not be necessary unless the patient is very ill, and this period of in-door treatment will probably be much shorter than the average for a tuberculosis case. The majority of such patients can be dealt with as out-patients either at the consulting rooms of a private or panel medical practitioner or at the local authority's venereal diseases treatment centre./

centre. Again, a much shorter period of sanatorium treatment is likely to be sufficient in these cases, which are proved to have both tuberculosis and syphilis provided the latter infection receives active specific treatment.

Another point of some importance is the fact that the number of foci of tuberculosis infection in any area will be reduced, and more attention can be given by tuberculosis medical officers, tuberculosis nurses, sanitary inspectors, etc. to the undoubted foci of tuberculous infection in their endeavour to prevent the spread of tuberculosis by education, isolation and disinfection etc.

The question is shown to be very complex and very far-reaching in its effects when one thinks of the wages lost to those patients while in the sanatorium. Exclude tuberculosis and any cases which receive anti-syphilitic treatment can continue their employment in the ordinary way. This economic point of view must not be lost sight of along with the fact that there is thereby less interference with the productive power of the community and of the state.

It is evident, therefore, that this question/

question is one which is by no means purely medical. Its effects extend in many other directions but I have merely attempted to indicate the main points in broad outline. While, as already stated, the number of cases may form a very small proportion of the total, still the total is so enormous, involves so much expenditure, directly and also indirectly, by loss of working capacity, and causes so much misery, etc. that I claim that any light thrown on the subject is of extreme importance.

CHAPTER III. MATERIAL AVAILABLE FOR ENQUIRY.

As Assistant Tuberculosis Officer, Dundee, I have had facilities for seeing all types of cases of tuberculosis. The Dispensary is situated in the industrial centre of the town and is open for the reception and treatment of all classes and for all forms of the disease.

From the Dispensary suitable cases may be referred for impatient treatment to Ashludie Sanatorium -- 64 beds.

As Resident Medical Officer at the Sanatorium I have opportunities of making careful enquiry into the histories of cases admitted, of making repeated examinations and of observing the sequence of events.

For the purpose of this examination I have analysed the findings in 119 cases admitted during the year November 1920 to November 1921. All were accepted as pulmonary tuberculosis by the Chief Tuberculosis Officer and a certain proportion were diagnosed by medical practitioners before the Tuberculosis Officer saw them.

Of the 119 cases admitted 90 came with the diagnosis of pulmonary tuberculosis,

20 as "doubtful and referred for observation", 9 as "bronchitis not responding satisfactorily to treatment", and referred for further observation.

The essential fact is that these cases were not selected in any way for the purpose of this investigation, but were the usual type of cases admitted to the Institution for the year.

That, from the clinical signs and symptoms etc. a certain number appeared to be profoundly influenced by some toxin closely allied to the tubercle toxin seemed undoubted.

The first case in my series serves as a good illustration -- The patient, a boy aged 16 was admitted in October 1920 to the Sanatorium as suffering from fibroid phthisis. On going into the history and from the facts obtained elsewhere, concerning his family history, it was found that the father had suffered and died from the effects of syphilis.

This boy gave a definite positive Wassermann reaction. Although the lung and general condition on admission were distinctly suggestive of pulmonary tuberculosis still the definite evidence was wanting and his sputum was negative for the tubercle bacillus after repeated/

repeated examinations.

As this case benefitted greatly from Anti-syphilitic treatment he was discharged in October 1921.

The latest report of him (March 1922) was that his condition was still improving and he was able for his work.

This case gave reasonable ground for supposing -- taking all the facts into consideration -- that the condition was one which resulted from syphilitic toxæmia and one which involved the lungs. A detailed description of this case is given in Chapter XIV. Case No.3.

CHAPTER IV. PROCEDURE ADOPTED.

Each new case on admission is subjected to a careful clinical examination and enquiry into symptoms. A minute investigation of the history of the present illness and of any previous illnesses -- noting the symptoms, severity and duration. Special observation being directed for any external signs of syphilis. Family history is carefully enquired into with a view to bringing to light the possibility of a predisposition to tuberculosis or of any history at all suggestive of syphilitic taint, and any treatment the patient may previously have undergone is noted.

As a routine, repeated microscopic examinations are made of the sputum, at weekly intervals, and each new case on admission has blood submitted to the Wassermann reaction test.

All these cases showing a positive Wassermann reaction are examined with a view to determine whether any disease likely to influence the reaction exists i.e. scabies, psoriasis, malaria etc., and any case with a history or showing signs of one or other of these diseases is omitted.

These/

These cases which are suspicious of syphilitic infection but whose Wassermann tests are negative and these cases showing only partial reactions are submitted for further test usually at an interval of one month.

CHAPTER V. GENERAL ANALYSIS OF THE WASSERMANN
REACTION OF THE 119 CASES ADMITTED
TO THE SANATORIUM.

Of the 119 cases admitted to the Sanatorium before treatment was commenced:-

37 representing 31.9% had a positive Wassermann reaction.

70 representing 58.8% had a negative Wassermann reaction.

12 representing 10.08% were reported as being doubtful to the Wassermann reaction,

Of the 37 Wassermann reaction positive cases:-

Class A. 8 or 21.6% showed no signs and gave no history of syphilis. The sputum was negative to the tubercle bacillus after repeated examinations.

Class B. 21 or 56.7% had a positive history of syphilis the sputum being negative to the tubercle bacillus after repeated examinations.

Class C. 8 or 21.6% had a positive history of syphilis and also sputum positive to the tubercle bacillus.

The high percentage of positive Wassermans in this series viz: 37 out of 119 seems very high and impresses one with the necessity of considering the value of the Wassermann reaction in the diagnosis of syphilitic conditions.

CHAPTER VI. VARIOUS AUTHORITIES ON THE VALUE OF
THE WASSERMANN REACTION ON THE
DIAGNOSIS OF SYPHILITIC CONDITIONS.

The prominence of the Wassermann reaction and its relation to the diagnosis of syphilis has made it a routine of the greatest importance in investigating suspected syphilitic conditions.

The following extracts show the views of various authorities on the subject.

Dr. Y. E. Hess Thaysen. (Lancet, January 1921)
 says:-

"The question of frequency of latent sy-
 "philis among patients in a medical de-
 "partment has not however, yet been
 "settled, because as a rule a Wassermann
 "reaction test has been carried out only
 "when the clinical symptoms point to
 "Syphilis or where there has at least been
 "cause for suspicion thereof. For the
 "discovery of latent syphilis it is nec-
 "essary also to perform a Wassermann
 "reaction in these cases where neither
 "the history of the case nor the clinical
 "examination give any reason for consid-
 "ering the patient a syphilitic, as only
 "in this way are we able to discover the
 "cases where the positive Wassermann
 "reaction is the only sign of the luetic
 "infection."

"Luetic researches have been made by
 "Fildes in 1917, Brahn in 1918, Weill in
 "1914, in Denmark by Schul, Faber in 1917
 "and by Meulengracht in 1919. Arne Faber
 "who examined 1233 patients found 29
 "positive Wassermann reaction without any
 "other sign of syphilis, and the patients
 "denied previous infection. Meulengracht
 "found among 504 patients admitted to an
 "ordinary clinic 10 in whom the positive
 "Wassermann reaction was the only sign
 "of syphilis while quite confident in
 "considering/

"considering the patients as syphilitics."
 "Meulengracht and Faber found that barely
 "half or 45% of the syphilitic patients
 "gave evidence of previous specific infect-
 "ion. Among 114 syphilitics I found 52
 "only who gave a clear history of a primary
 "sore."

"My patients are taken from a hospital which
 "only admits the poorest, of whom no doubt
 "many have been infected at a time when
 "neither knowledge of syphilis was so wide
 "spread as it is now, or the diagnosis as
 "certain. The approximate frequency of
 "ignored latent syphilis discovered only
 "through the Wassermann reaction among
 "patients in a medical department which
 "admits patients of all ages above 15
 "years, from a large town is as we see
 "about 2.5% of the whole number."

"When among 114 cases of syphilis we are
 "able to discover no less than 30 in whom
 "the syphilitic infection can only be
 "discovered by the examination of the
 "blood, in spite of the fact that the
 "infection in many of the cases dates
 "from several years back, this striking
 "observation throws a different light
 "on the prognostic value of the positive
 "Wassermann reaction."

Fox in his "Syphilis and its Treatment"

(1920) Chap. VII. says of the Wassermann
 reaction.

"The test has been in use since 1906,
 "and there is no question that its sound-
 "ness and reliability are generally
 "recognised. It is not infallible, but
 "eliminating the possibility of such
 "diseases as leprosy, yaws, sleeping
 "sickness, and perhaps the early stages
 "of scarlet fever and measles., a pos-
 "itive Wassermann is as sound a proof of
 "syphilitic infection as can be looked
 "for."

"In proof of the trustworthiness of the
 "test as generally applied in a vener-
 "eal clinic to syphilis in its various
 "stages, Dr. Sequeira gives the following
 "results of the blood examination in
 "cases /

"cases which he himself felt clinically
 "certain were syphilitic."
 "Primary syphilis, Reaction positive in
 "90 per cent.
 "Secondary syphilis, " " "
 "99 per cent.
 "Tertiary Syphilis " " "
 "95 per cent.
 "Congenital syphilis" " "
 "100 per cent."

Thompson in his treatise "Syphilis, Diag-
 nosis and Treatment" (1920) in Chapter VII
 refers to the value of the Complement Fixation
 Tests in Syphilis. He says:-

"In regard to the percentage of positive
 "Wassermann reaction obtained during the
 "later course of the disease investig-
 "ations, differ. The consensus of opinion
 "however, seems to be that in untreated
 "cases practically 100 per cent of syphil-
 "itics will give a positive reaction dur-
 "ing the first year. Treatment during
 "this period of the disease has a marked
 "effect on the Wassermann reaction and
 "if sufficiently intensive and carried
 "out over a considerable length of time
 "will usually cause a positive test to
 "become negative. It is in the later
 "course of syphilis especially when lesions
 "of the vespera develop that the Wasser-
 "mann reaction has its greatest value. In
 "untreated cases of this nature the test
 "is positive in about 95 per cent. Treat-
 "ment in these conditions also will marked-
 "ly influence the reaction. In congenital
 "syphilis, according to Holt, practically
 "a 100 per cent of cases show a positive
 "Wassermann even if treated with mercury,
 "unless the treatment has been most vig-
 "orous and protracted."

Craig "Wassermann test" (1921) Chapter VII.

states:-

"In conclusion, it may be stated that the
 "substance or substances that cause a
 "positive/

"positive Wassermann reaction appear to
 "be practically peculiar to the blood
 "serum of patients suffering from
 "syphilitic infection, and while it
 "cannot be claimed that the test when
 "positive, is absolutely specific of
 "syphilis from a practical standpoint
 "it is doubtful if a more specific test
 "is employed in medicine, the margin of
 "error appearing to be less than five-
 "tenths of one per cent."

In view of these extracts, along with my experience in the study of these classes described in Chapter V, I am of opinion that a positive Wassermann is sufficient evidence to justify at any rate an attempt to treat with antisyphilitic remedies, even although it may give no result in a certain number of cases. The percentage of discrepancies is so small that the positive Wassermann reaction may be considered as practically definite evidence of the presence of syphilis in some form or another. If along with the positive Wassermann, there is the faintest evidence in clinical signs or history then the presence of Syphilis may be considered as definitely established -- always remembering of course the possibility of the presence as well of some other disease such as tuberculosis.

CHAPTER VII. SYMPTOMS AND PHYSICAL SIGNS OF CASES INCLUDED IN CLASSES (QUOTED IN CHAPTER V.,) HAVING A POSITIVE WASSERMANN.

In many of the cases mentioned in this Chapter, the symptoms were very similar. The physical signs were dependent more or less upon the extent and activity of the focus involved. The symptoms common to all these cases were -- cough harsh or dry, mild or severe, with sputum mucoid or muco-purulent and sometimes streaked with blood.

Dyspnoea, lassitude and loss of weight were frequently associated. Secondary anaemia nearly always an outstanding clinical feature was as a rule the first to disappear under anti-syphilitic treatment.

Pyrexia was found to be a variable factor often slight as in Class A., or more pronounced and intermittent as in Class C.

Each Class in Chapter V. is taken separately and the symptoms and clinical manifestations given seriatim.

Class A. - Eight cases or representing 21.6% of the total positive Wassermann showed the following symptoms and physical Signs:-

Symptoms:- Cough, slight or severe, sputum usually mucoid in character, anaemia, debility and sometimes dyspnoea.

Physical signs:- Dullness at apices and occasionally at infra scapular region or at one or other of the bases. Vocal fremitus varied. Vocal resonance found as a rule to increase over the dull areas. Breath sounds ranged from high pitched vesicular to broncho vesicular. There were seldom any accompaniments except perhaps for an occasional rhonchus.

Class B. - Twenty one cases representing 56.7% of the total positive Wassermanns showed the following symptoms and physical signs.

Symptoms:- Cough, spit mucoid in character, dyspnoea, loss of weight (in some cases only), occasional night sweats and anaemia.

Physical signs:- In this class there were 14 who had indications of hereditary infection in one or other of the following manifestations --

Retarded development, bony malformations, skin cicatrices, pigmentation of skin, ^{Hutchinson's} Hutchesons Triad etc.

Seven had history of acquired syphilis.

The lungs in the majority of cases in this class showed areas of localised induration either at the apices or at one or other of the bases.

Vocal fremitus varied in its conduction and vocal resonance, usually increased over the areas involved.

Breath sounds were vesicular or bronchovesicular in character with or without accompaniments.

Class C - Eight cases or representing 21.6% of the total positive Wassermann showed the following symptoms and physical signs:-

Symptoms:- In most of the cases in this class the symptoms were of severe toxæmia with irregular and often high temperature, cough, mucopurulent sputum, dyspnoea, night sweats, cachexia and marked anaemia.

Physical signs:- Two had history to indicate/

indicate acquired syphilis, one of whom had been imperfectly treated at the time of infection. Three showed the external manifestations of hereditary syphilis. Three had history to indicate hereditary taint but had no external signs of the disease.

The lungs showed areas of consolidation either at the apices or at one or other infra spimous region or at the bases. There was cavity formation in three cases.

All the types of respiratory murmurs were met with according to the pathological condition present with moist râles and rhônchi.

Types from each class are illustrated in the cases I have selected for review in Chapter XIV.

In all classes A, B and C the signs and symptoms were certainly suggestive of pulmonary tuberculosis and justified such a diagnosis failing more complete investigations in the light of possibility of syphilis participating in the causation.

CHAPTER VIII. FINDINGS OF VARIOUS AUTHORITIES
ON SIGNS AND SYMPTOMS OF SYPHILIS
OF THE LUNGS.

In the preceding Chapters I have indicated the symptoms and clinical manifestations found in these classes quoted in Chapter V. In support, the views of various authorities on the subject may be given.

Powell and Hartley "Diseases of the Lungs and Pleurae" (1921) in Chapter XXV say:-

"The symptoms of pulmonary syphilis are often obscure, and may be readily confounded with those of ordinary inflammatory conditions. The symptoms generally present are those of chronic indurative disease of the lung or pleura. A paroxysmal cough with difficult expectoration, of obstinate continuance uninfluenced by ordinary remedies and associated with but little emaciation and no pyrexia. Pleuritic pains are often present. The presence of such symptoms in a person bearing the marks or giving the history of syphilis would be very significant."

"It not infrequently happens, however, that some peculiarity or incongruousness in the symptoms or physical signs leads to the suspicion of a syphilitic taint, the surface marks of which are obscure and the history of which is at first denied, either intentionally or through ignorance. In such cases a Wassermann test of the patient's blood may prove of value."

"Haemoptysis is rare in the early stages and when it occurs it is highly suggestive of tuberculous complications. Cases moreover, do occur in which more acute symptoms present themselves, including a remittent pyrexia and such cases very clearly resemble tuberculosis."

"The most characteristic physical signs are/

"are those of localised pulmonary induration -- flattening, dulness or a sense of hardness on percussion, with enfeebled breath sounds of blowing quality, with few or no moist sounds. Some bronchial clicks or more commonly a superficial crackle of pleuritic or subpleural source may be heard. Such signs when presented at some unusual situation, as about the mammary or infra-mammary or infrascapular region, are very suggestive."

"It is certain, however, that in some cases the physical signs are not localised in any unusual spot, but present themselves at one or other apex, and under those circumstances the diagnosis from chronic tuberculosis is most difficult. The presence of considerable one-sided indurative disease of the lung, of chronic course and not traceable to any preceding acute attack, in a person who has not been engaged in any dusty employment and whose sputum contains no tubercle bacilli should lead to a suspicion of syphilis."

"Having arrived thus far, a careful inquiry into the history, and examination for surface marks of the disease and a Wassermann test will usually clear up the case."

"The sputum should also be examined for spirochaetes, gummata, sometimes soft and produce cavities which are small, however and often too deeply seated for recognition."

Anders' "Practice of Medicine (1915) Part

II, page 399 says:-

"A certain limited number of cases present symptoms and signs that simulate ordinary ulcerative phthisis, but do not show bacilli in the sputum. There is another group of cases which the picture presented to view is almost identical with that of fibroid induration, through usually giving a distinctly syphilitic history."

"I am not prepared to say that there is an acute syphilitic broncho pneumonia analogous to acute pneumonic phthisis, though I fail to see any reason why this may not occur."

"Bronchiectasis/

"Bronchiectasis dependent upon syphilitic
 "peri-bronchitis or interstitial pneumonia
 "cannot be discriminated from other forms
 "of that disease except there be a clear
 "history of infection, and unless associat-
 "ed scars or active syphilitic lesions co-
 "-exist."

"Pulmonary tuberculosis cannot be distin-
 "guished from pulmonary syphilis without a
 "careful microscopic examination of the
 "sputum. Moreover, it must not be for-
 "gotten that these affections are often
 "combined. The suspicion of syphilis
 "should always attach to lesions, beginning
 "in the lower parts of the lung, and
 "slowly progressing without the production
 "of fever."

Sir Clifford Allbutt, K.C.B., M.D. in
 his opening paper at the Annual Meeting of the
 British Medical Association, July 1921, at
 Newcastle-on-Tyne, referred to the subject as
 follows:-

"In pulmonary diseases therefore, we should
 "not forget that syphilis may make one of
 "a party of causes. As for example in
 "fibrosis with bronchiectasis. Syphilis
 "is taken to be rare in the lung, so it
 "may be. Nevertheless, in chronic indur-
 "ative affections of the lung it is always
 "well, in our therapeusis, to remember
 "this possible ingredient. Physical signs
 "are at the best equivocal. Syphilitic
 "disease may affect the apex, may caseate
 "and soften into cavity, and the spiroch-
 "aete is not above keeping company with
 "the tubercle bacillus."

"An appearance of bronchitis after a le^{uc}
 "infection should therefore be closely
 "watched, lest, while in a curable phase,
 "such irreparable mischief be done."

"Tripiet is very confident that in those
 "fibroid lungs syphilis is by no means
 "infrequent."

Thompson -- "Syphilis Diagnosis and
 Treatment"- (1920) in Chapter XII says:-

"Pulmonary syphilis may develop at nearly any time during the course of the disease but it is usually a late manifestation, being, as a rule, observed from three to ten years following the infection. The symptomatology of syphilis of the lung will vary with the extent and nature of the process."

"Diffuse interstitial fibrosis of the lung in the early stages will sometimes cause symptoms markedly resembling pulmonary tuberculosis. The most frequent symptom is cough, which is usually dry and may be mild or severe. When present, the sputum is mucoid or muco-purulent in character and may be scanty or profuse. It may contain elastic tissue and may be tinged with blood."

"Marked haemoptysis sometimes occurs. There may be chills in the afternoon followed by more or less fever, the temperature sometimes reaching 41° C. or over, as in a case reported by Roussel. The temperature may also become subnormal."

"Night sweats are not found in pulmonary syphilis, as a rule, but do sometimes occur and may be of a drenching character."

"There is usually more or less loss of weight, sometimes extreme cachexia, but the patient may be well nourished."

"Depending upon the area involved there will be dulness, increase vocal fremitus, broncho vesicular breathing and râles. In the later stages of diffuse interstitial fibrosis the signs and symptoms will depend upon the extent and location of the process."

"Gummata of the lung may or may not give rise to physical signs and symptoms, depending upon their size and location. The most frequent noted symptom is a cough, usually of trivial character. The physical signs of consolidation, dullness, increased vocal fremitus, râles etc. may be present if the gummata are large or numerous."

Fox -- "Syphilis and its Treatment"

(1920) Chapter VI, says:-

"Bronchitis of the smaller tubes is often associated/

"associated with the very rare chronic
 "syphilitic interstitial pneumonia. This
 "form of fibroid phthisis reacts well to
 "treatment and cases have been reported
 "which have closely resembled tuberculosis
 "of the lung but cleared up almost entirely
 "under antisyphilitic treatment."

Craig -- "Wassermann test" (1921)

Chapter VII, says:-

"Another disease in which a considerable
 "proportion of positive reactions have
 "been reported is tuberculosis. Some
 "authorities have reported as high as 30
 "to 40 per cent. of positive results in
 "this disease but such reports are absol-
 "utely unreliable and prove that the
 "method of performing the test must have
 "been erroneous. The writer has tested
 "hundreds of cases of tuberculosis and
 "while a few have shown a positive re-
 "action syphilis could not be excluded
 "in any case, and the majority of the
 "patients admitted infection. There are
 "many instances on record of syphilis of
 "the lung existing along with tuberculosis
 "of the same organ, and many in which
 "syphilis of the lung was diagnosed as
 "tuberculosis, and it is these cases that
 "have caused the impression that tuber-
 "culosis frequently gives a positive re-
 "action with this test, together with a
 "large number of latent syphilitic infect-
 "ions which are found in patients suffer-
 "ing from other diseases. There is also
 "considerable evidence to prove that
 "tuberculosis renders an individual much
 "less resistant to infection with tre-
 "ponema pallidum and this probably has
 "much to do with the prevalence of the
 "disease in the tubercular."
 "However, that tuberculosis is a disease
 "which causes a positive Wassermann re-
 "action can not be longer maintained in
 "view of the negative results of the
 "best observers as reported in the most
 "recent literature."

A study of these opinions along with my experience in the observation of these classes A, B and C., I am of opinion that the signs and symptoms, as I found them, were equally applicable either to pulmonary tuberculosis or to pulmonary syphilis.

CHAPTER IX. PROBABLE CONDITIONS PRESENT IN THESE CASES WITH POSITIVE WASSERMANN REACTION.

It was difficult to make a definite diagnosis in these cases where the symptoms and physical signs were at the best indefinite or equivocal. This especially so in patients in Class A. (Chapter V) which were admitted as suffering from tuberculosis.

The balance of evidence in favour of these cases being tuberculous in nature lay in the fact that the apices were most commonly involved and along with the abnormal breath sounds, debility, dyspnoea, anaemia and chronic history of the condition amply justified the original diagnosis.

In favour of syphilis were the positive Wassermann reaction, absence of night sweats, anaemia and mild or moderate temperature along with the improvement under antisyphilitic treatment. The condition in this class may have been associated with syphilis, hereditaria tarde or else the rarer condition of transmission to the third generation.

In Class B again the features were even more in support of pulmonary tuberculosis especially/

especially in these cases where night sweats, cachexia, irregular temperature and muco-purulent sputum were in evidence and indeed although no tubercle bacilli were found in the sputum these cases may nevertheless have been tuberculous whether syphilis participated or not.

In this class, however, to favour the diagnosis of syphilis were -- the history of syphilis, positive Wassermann reaction, general improvement in condition resulting from anti-syphilitic treatment along with the sputum negative to the tubercle bacilli.

In Class C where there was definite evidence of tuberculosis and syphilis combined, the difficulty lay in forming an opinion as to which of these diseases superimposed and which was responsible for symptoms and physical signs. It may have been due to the combined toxæmia which accounted for the unsatisfactory results in the majority of those cases with antisyphilitic treatment.

Considering the prevalence of syphilis of the present day and all its manifestations we may not be led far astray in our diagnosis and more especially so when we recognise the fact that it is only comparatively recently that/

that any great advance has been made in the diagnosis and treatment of syphilis.

Until this enlightenment took place the knowledge of the disease was very much in the dark and the treatment of it left to take care of itself. It is not that there is an appalling increase in the disease to-day but that by the swift and sure methods of diagnosis a greater number of cases have been brought to light which would otherwise have gone unnoticed or imperfectly treated as was the case in the last generation.

Many of these patients with a positive Wassermann, never having acquired the disease, deny and probably conscientiously so all knowledge of its presence. They would not appreciate the significance of certain ailments, which from time to time they may have suffered, their working capacity not having been interfered with and the ailments which to them would appear trivial.

Another possibility is the transmission of syphilis to the third generation. This has been recognised by Fournier and others who claim that not only dystrophies and deformities may be transmitted but also active syphilitic lesions./

lesions. Thompson maintains that in the so-called syphilis hereditaria tarda symptoms do not develop for years after birth. The year at which it is said to make its appearance most frequently being the twelfth year although it may appear early or later.

Fox states that quite a large number of manifestations occur in people who show little evidence, if any, of hereditary taint during infancy or childhood but who, on attaining adult life suddenly become afflicted with some active destructive lesion and Fournier points out that these conditions are more common than are generally supposed and that the lesion may appear in any part of the surface of the body or in the bones or viscera.

I am quite satisfied, therefore, that in all the cases included in these classes the conclusion that syphilis was a factor in the aetiology was a necessary one and one that had to be borne in mind for purposes of treatment.

CHAPTER X. PATHOLOGICAL CHANGES.

As there have been no deaths amongst patients of these classes and consequently no autopsies my conclusions are based entirely on clinical observations supported by the opinions of various authorities.

As has been indicated the symptoms and physical signs were in many cases very similar viz:- catarrh, with cough, spit, localised induration with or without accompaniments. From the chronic history of many and the physical condition of the lung, we may be justified in supposing that the same process of fibrosis occurs in the lungs as in any part of the body structure affected with syphilis.

It is perhaps possible that early pathological changes take place in and around the arterioles in the form of an initial periarteritis subsequently becoming the typical endarteritis involving the perivascular structures and invading the lung parenchyma itself and gradually advancing to a complete fibrosis of the area involved. It is probable also, that cases will be found showing all stages of this transformation and destructive process. From the commencing periarteritis with its slight catarrhal symptoms
dn/

in harsh vesicular respiratory murmurs etc. to perhaps the complete endarteritis, fibrosis of the parenchyma and stenosis of the smaller bronchi with the resulting physical signs of consolidation which may involve the pleura.

Again in many of these chronic cases where the lung condition is of long duration, especially in middle aged persons, where there is a positive history of acquired syphilis and associated with a mucopurulent sputum the pathological changes may be due to gummata.

Such a condition may be rare in the lung, and be undetected if uncomplicated but where there is secondary infection and a mucopurulent sputum, in many cases the condition indicates a breaking down of the gummata with perhaps cavity formation analagous to that of ulcerating tubercle.

Ahders' "Practice of Medicine" (1915)
Part II page 399 relating to symptoms of the lung states:-

"Interstitial pneumonia is a fibrous infiltration showing a predilection for the right lung. The chief seat is the root of the lung, whence it extends along the bronchi and vessels and usually involves a part of one or more lobes. Occasionally the starting point is the pleura from which the process advances along lines corresponding to the interlobular/

"lobular tissues. Bronchiectasis may be noticed gummata may also be associated or may have been present and been practically obliterated during the process of cicatrisation."

Sir Clifford Allbutt in his opening paper on "Visceral Syphilis" at the Annual meeting of the British Medical Association, Newcastle-on-Tyne, in July 1921, referring to the pathological condition present states:-

"Pathologically visceral syphilis like syphilis in the primary sore or skin is a disseminated lympharteritis, about the arteritis itself there is no peculiar character. Cacterio paribus. It is the same process as we see in vessels involved in other inflammatus lesions, in tuberculosis and sonon"
 "Let me urge that the specific lympharteritis, starting as a local sepsis soon becomes universal. It is true that massive gummatos even miliary granulomata is rare in the lung; but some chronic thickenings of ^{chronic mass in upper syphilitic} amorphous invasion is prone to occur at the root about the large vessels and big bronchi whence it may spread to the bifurcation of the bronchi and the substance of the lung."

Dr. Reynolds at the same meeting referring to the subject states:-

"I have seen two or three cases of what at first looked like extensive chronic pulmonary tuberculosis, but in which the bases were more affected than the apices and in which by percussion and auscultation one could picture the presence of indurative masses with extensive bronchiectasis due to advanced pulmonary syphilis."

Thompson, "Syphilis Diagnosis and Treatment" in Chapter XII says:-

"Most pathologists describe two types of
 "pathology in syphilis in the lung, diffuse
 "interstitial fibrosis and gummata. To
 "these Carrera adds syphilitic peri-bron-
 "chitis with arteritis and syphilitic
 "arteritis. Stanley divides the first var-
 "iety into three stages."

"(1) An intense cell proliferation which
 "fills the alveoli and infiltrates the
 "septa, the peribronchial, subpleural and
 "perivascular tissues. It may be gener-
 "al or localised. This a rapid process
 "and is a true interstitial pneumonia."

"(2) Stanley describes an early diffuse
 "sclerosis in which the lung is not mis-
 "shapen, but looks and feels tough. It is
 "pale in places and mottled in others."
 "There is a general increase in connective
 "tissue particularly in the alveolar walls
 "while miliary gummata are present. The
 "elastic tissue shows marked proliferation
 "much more so than in tuberculosis. There
 "are typical syphilitic changes in the
 "blood vessels."

"(3) The third stage described by Stanley
 "as dense sclerosis. The lung may be con-
 "tracted and mis-shapen. Microscopically
 "there are tough irregular masses of
 "fibrous tissue everywhere. The alveoli are
 "made out with difficulty while miliary
 "gummata are common, and the vascular
 "changes are typical."

"Gummata of the lung occur as nodules,"
 "varying in size from one or two millimeters
 "to several centimeters and may be quite
 "numerous."

"When seen in their earlier stages they are
 "grayish red or grayish white and surrounded
 "by an area of congestion. Later they may
 "become soft necrosed and opaque and are
 "usually walled off by connective tissue or
 "they may rupture into a bronchus. Instead
 "of necrosis a fibrosis may take place."

"Both the diffuse interstitial fibrosis and
 "gummata are more frequent at the hilus of
 "the lung although, as pointed out above, the
 "former condition may be generalised. The
 "apex is rarely alonge the seat of the pro-
 "cess and as a rule the condition is uni-
 "lateral although both lungs may be involved."
 "Spirochaetes have been demonstrated in the
 "pulmonary lesions of acquired syphilis by
 "Koch/

"Koch, Schmorl, and Warthin, and according
"to Osler and Gibson, Buchanan found them in
"the sputum of a patient with undoubted
"pulmonary syphilis."

"Osler and Gibson describe the syphilitic
"phthisis consisting of the formation of
"fibrous tissue, gummata and pneumonic
"affections leading to cavitation and
"bronchiectasis."

CHAPTER XI. TREATMENT ADOPTED.

The same lines of treatment were adopted for all cases showing a positive Wassermann reaction. Neckharasin was given intravenously in doses and at intervals as indicated. The object in view to render the patient's blood negative to the Wassermann reaction and once this result was obtained to keep it so and to arrange the courses and in such a manner that the next injection was given before the blood had time to revert to positive.

The courses given and the technique employed were as follows:-

Ordinary course: (Dates provisional).

Date	Febry	3rd.	-	Neckharasin	.3	gramme	along with
"	"	10th.	-	"	.3	"	mercury
"	"	17th.	-	"	.6	"	gr. 1.
"	"	24th.	-	"	rest.	"	"
"	March	3rd.	-	"	.6	gramme	"
"	"	10th	-	"	rest.	"	"
"	"	17th.	-	"	.6	gramme	"
"	"	24th.	-	"	.6	"	"

The patient at the end of this ordinary course continued on potassium iodide and mercury by mouth for 14 days and had a blood test in one month. If the Wassermann reaction was positive/

positive a modified course was given.

Modified course:

Date	May 4th.	-	Neokhar asin ^{isivan}	6	gramme	along with
"	"	11th.	-	"	.6	mercury
"	"	18th.	-	"	.6	gr. 1.
						" "
						" "

The patient at the end of the modified course continued with potassium iodide and mercury by mouth for a further period of 14 days and had the blood tested in one month. If still positive either potassium iodide and mercury were continued for two months or a full course of Neokhar~~asin~~^{isivan} intravenously was given according as indications permitted.

If such cases showed intolerance the Neokhar~~asin~~^{isivan} was discontinued and potassium iodide and mercury carefully administered according to the following prescriptions.

R/ Potassium Iodide	3ij	R/ Hydrarg protiodid	
Spt: Ammon Aromat	3iv	Ext. Opii.	gr 3/4
Aq. ad	3vi		gr 1/6
Sg.	3ss pro dose.	Sg.	- one pro dose.

Careful observation was made on those cases for any signs of mercurial poisoning.

These courses were given until such time as the blood reaction became negative to the Wassermann test. If the condition obviously/

obviously improved under Neokhar~~asin~~ and mercury a full ordinary course was given in each case, and the treatment continued until the blood was rendered negative if possible.

In many cases, in spite of prolonged treatment, the blood reaction remained positive or ~~was~~ partially positive although the lung and general condition had improved.

If a mild anaphylaxis to neokhar~~asin~~ showed as urticaria, conjunctivitis or diarrhoea etc. the drug was given in smaller doses. If graver manifestations appeared as high temperature, jaundice, nephritis etc. the drug was discontinued.

The majority of cases in Class C showed a marked intolerance to Neokhar~~asin~~ even when administered in smaller doses. One case of this class, however, improved under antisyphilitic treatment and is one of the cases selected for review in Chapter XIV., Case No.5.

In no case was there inflammatory or septic local reaction from the intravenous administration.

CHAPTER XII. RESULTS OF TREATMENT.

The results of treatment as indicated in Chapter XI may be said to have been on the whole, satisfactory and encouraging. An analysis of the results of such treatment in these classes A. B. & C. showed:-

In Class A of eight cases:- 1. Five improved.

In each case there was diminished cough and spit. Steady increase in weight and bodily vigour and these patients felt much improved generally and were able for the highest grade of labour before their discharge. There was marked improvement in the lung condition of these cases.

II. Three did not improve. One developed an irregular temperature. One showed signs of gastro intestinal irritation and one showed intolerance in albuminuria. The treatment was stopped in each case.

In Class B of twenty-one cases: 1. Eight improved under antisyphilitic treatment. In each case there was diminished cough and spit, modification of the respiratory murmurs, increase in bodily vigour and weight and they were able for the highest grade of labour before their discharge. In none of these eight cases did/

did the lung dullness appear to diminish.

II. Five left the Sanatorium before the treatment was completed.

III. Two refused treatment as they had already undergone antisyphilitic treatment.

IV. Three were conscientious objectors and refused treatment.

V. Three showed intolerance and the treatment was discontinued.

In Class C of eight cases: I. Six showed signs of intolerance and treatment was stopped.

II. Two improved under Antisyphilitic treatment. One increasing in weight and bodily vigour, with diminished night sweats, cough and spit and a marked fall in the temperature. Lung dullness remained unaltered. Respiratory murmurs were modified. The other case appeared to improve in his general condition although the temperature remained irregular.

A subsequent analysis of the blood in these 37 cases, taken after a course of treatment revealed.

In Class A. A persistent positive Wassermann reaction in 5 cases. A doubtful Wassermann reaction. In 1 case. A negative Wassermann reaction in 2 cases. Of the five showing a persistent/

persistent positive Wassermann three were cases where the treatment had to be discontinued for reasons already explained.

In Class B. A persistent positive Wassermann reaction in 4 cases. A doubtful Wassermann in 2 cases. A negative Wassermann reaction in 2 cases. Besides these four showing a persistent positive Wassermann reaction there were thirteen cases showing a similar reaction, but who had no treatment for reasons already explained.

In Class C. A negative Wassermann reaction in 2 cases. 6 cases showing a positive Wassermann reaction were intolerant to the drug and treatment had to be stopped.

CHAPTER XIII: My opinion as to line of treatment to be adopted in Class A, Class B. Class C etc.

From conclusions based on experience gained and as described in Chapters XI. and XII., the lines of treatment, in my opinion, to be adopted in these various classes should be something as follows:-

In Class A. after close observation of each case and after repeated sputum examination to commence antisyphilitic treatment as soon as possible. If the case improves, to continue with this treatment until one or two courses have been given and until such time as the blood reaction is rendered negative. Always noting carefully for any signs of intolerance and withholding the drug should any untoward symptoms appear. This of course applies to all classes.

In Class B. after repeated sputum examination to commence antisyphilitic treatment as soon as possible. It is the most important and really the only line of treatment in this class where the blood reaction is positive and there is a positive history of syphilis and especially so where there has been no previous treatment. To continue in its administration and until the symptoms and physical signs abate and until the blood reaction is rendered negative.

In Class C. treatment in this class is altogether different and must be guided by circumstances. When commenced Neckarsivan should be given if need be in smaller doses, especially in these febrile cases. The drug must be administered discriminately, judiciously, noting the slightest sign of intolerance, stopping all treatment immediately should such symptoms manifest themselves.

In all cases of Class A, Class B and Class C. a Wassermann test should be taken as often and at intervals as already indicated as in Chapter XI.

Neckarsivan is recommended as being the most suitable preparation for use in these cases. Where veins are small etc. Galyl may be given intra muscularly or Sulfarsenol sub^{cut}aneously.

In the question of treatment of pulmonary syphilis views of authorities differ.

Powell and Hartley "Diseases of the Lungs and Plueræ" Chapter XXV state:-

"In the treatment of pulmonary syphilis
 "it is well to commence with a course of
 "salvarsan, provided that the heart and
 "kidneys, and especially the liver appear
 "to be healthy. Neosalvarsan is perhaps
 "the best preparation to use, but if it
 "cannot be obtained galyl or neo-arsenobill-
 "ion should be substituted. In the adult
 "sets 0.6 to 0.9 gramme of neosalvarsan
 "may be injected intravenously with the
 "full/

"full antiseptic precautions once a week
 "until six injections have been given.
 "During the course mercury and iodide should
 "be prescribed, after the above course of
 "injections the salvarsan and mercury should
 "be stopped but the iodide continued. After
 "two months if the Wassermann reaction is
 "still positive another course of mercury
 "and salvarsan should be prescribed and the
 "iodide afterwards continued with inter-
 "mitting courses of mercury, the Wassermann
 "reaction being tested from time to time."

Thompson, "Syphilis Diagnosis and Treat-
 ment" Chapter XXIV states:-

"The same standard of cure of congenital
 "syphilis is required as in acquired syphilis,
 "although it must be said that the product-
 "ion of a complete clinical and biological
 "cure is often much more difficult in the
 "former condition than in the latter. This
 "is especially true of Syphilis Hereditaria
 "Tarde. The treatment, however, should be
 "continued at least periodically throughout
 "the life of the patient as long as any
 "evidence of active syphilis either clinical
 "or laboratory is present."

CHAPTER XIV. ILLUSTRATIVE CASES.

Each of the six cases selected may be taken as typical examples of the class to which they belong.

Under Class A cases Nos. 1 and 2 gave no history and showed no signs of syphilis other than a positive Wassermann reaction. In both there were no tubercle bacilli in the sputum. They improved under antisyphilitic treatment.

Under Class B. cases Nos. 3 and 4 gave a history of syphilis and had a positive Wassermann reaction. They improved under antisyphilitic treatment. No tubercle bacilli were found in the sputum.

Under class C both cases gave a history of syphilis, showed positive Wassermann reaction and had tubercle bacilli in the sputum. Case No. 5 may be said to have improved under treatment, case No. 6 doubtful. In none of these cases selected were spirochaetes found in the sputum after repeated examinations.

CLASS A -- 2 CASES.Case History No. 1

Jessie C. (female) age 34, admitted to the Sanatorium for pulmonary tuberculosis on 3rd/

3rd May 1921. Her complaint on admission was cough, spit, pains in chest, dyspnoea. History of rheumatic pains in the larger joints at the age of 17 years. No previous chest trouble, and no family history to indicate syphilis.

Her present condition was associated with a "cold" which she contracted six months prior to admission. Since then the cough and spit had developed and she had been feeling out of sorts.

On admission she was fairly well nourished, distinctly anaemic and showed no external signs of syphilis.

Examination of the chest revealed dullness over the right upper lobe and especially marked posteriorly. Diminished expansion over right apex. Vocal resonance was increased over the dull area. Breath sounds were bronchial over right apex posteriorly and anteriorly with an occasional inspiratory dry râle. Elsewhere breath sounds were vesicular in character with no accompaniments. Vocal fremitus increased over right lung. Other systems were found to be normal.

Weight on admission 94 lbs.

Progress: This case was admitted and treated for phthisis from 3rd May 1921 until the beginning of January 1922. During these months there was no marked improvement in the condition. A course of sodium morrhuate was given and completed on 28th August, but the physical signs in the chest showed little if any alteration. There was still a marked degree of anaemia. Throughout this course she continued to have cough, spit and occasional pains in the knee joints. Examination of the latter failed to reveal any signs of a rheumatic lesion. The temperature from admission until December 1921 was intermittent in character rising in the evening to 99° F. and occasionally to 100° F. Once only during these eight months was the patient able for the first and lightest labour grade and this she was unable to continue for more than six days. She showed little if any progress in that time and was subject to relapses which kept her on rest for indefinite periods.

As this case did not improve satisfactorily under the ordinary sanatorium treatment, and/

and in view of the positive Wassermann reaction it was thought advisable to try antisyphilis methods. This was begun on 5th January, 1922 and after the first intravenous injection of Necharsivan there was a slight elevation of temperature. From the third week onward, however, there was a steady improvement under its influence giving encouragement for its continuance. The patient showed no signs of intolerance. She had one complete ordinary course and as her general condition improved and as the second blood test was still partial positive, it was thought that she might benefit from a further course of antisyphilitic treatment. On 13th March she was able for the third highest labour grade and was able to continue it without remission. The patient's colour is now almost normal, she has no complaints and her weight has steadily increased being now 100 lbs. Her appetite has improved and she feels an increase in bodily vigour.

The temperature now pursues the normal course the pulse is slower, more regular and much more settled than before. Chest examination on/

on 10th March, showed dullness as previously indicated but the respiratory murmurs were much fainter and more vesicular in type.

There were no accompaniments.

Patient has now no cough, spit or dyspnoea.

She sleeps well and with her return of strength is encouraged to hope for her early discharge when she may resume her previous occupation.

Case History No.2.

Alexander W. (Male) age 17, admitted to the Sanatorium for pulmonary tuberculosis on 16th December 1921. His complaint on admission was cough, spit, hoarseness and dyspnoea. No previous illnesses other than children's diseases. No family history to indicate syphilis. His present condition began first with cough and occasional pains on the left side of chest four months prior to admission.

On admission he was ill nourished and anaemic. He showed no external signs of syphilis. There was a degree of aphonia.

Examination of chest revealed diminished expansion of apex over right clavicle. Percussion note was impaired over right upper lobe to third rib anteriorly and to mid-scapula posteriorly.

Vocal/

Vocal resonance was increased over right upper lobe. Breath sounds were harsh and high pitched, vesicular throughout the right lung and at left base. Occasional distant inspiratory rhôncchi at bases but no other accompaniments. Vocal fremitus appeared to be equally conducted.

The larynx showed injection of the mucus membrane and there was inflammation of the fauces. Other systems were found to be normal. Weight on admission 86 lbs.

Progress: From admission until 16th January,

1922, patient was kept under observation and treated for pulmonary tuberculosis.

His sputum was mucoid in character and after repeated examinations found to be negative for tubercle bacilli.

During this period the temperature was intermittent in character and for the first three weeks after admission rose to 100°F. on two or three occasions in the evenings. The pulse was regular but rapid with an average of 99 beats per minute.

His blood was definitely positive to the Wassermann reaction 21:12:21.

On this account it was thought advisable to give a course of antisyphilitic treatment.

Treatment/

Treatment was begun on 17th January and since then the patient has completed an ordinary course. The results have been favourable and there has been a marked decrease in the anaemia. Since the administration of Neokharsivan the temperature has remained normal. His pulse is now regular and steady. He has put on weight and is now 93 lbs. He feels an increase in his bodily vigour.

Before beginning antisyphilitic treatment the patient was only able to perform the lightest form of exercise. Since 17th January he has gone steadily forward and is now able to sustain the second labour grade. His present chest condition (8th March) reveals the same area of dullness as previously indicated but the respiratory murmurs are much fainter and there are no accompaniments. He has no pains and the chest moves more freely on inspiration. There is now no cough or spit, the larynx is normal and the voice has returned, and is clear and distinct. The patient showed no signs of intolerance.

The most recent blood test was still positive/



positive to the Wassermann reaction. With this fact in view and from the obvious improvement from antisyphilitic treatment it is hoped that a further course will continue to improve the condition and render the blood negative.

CLASS B. 2 CASES.

Case History No. 3.

Atholl C. (Male) age 16, admitted to the Sanatorium for pulmonary tuberculosis on 6th October 1926. His complaint on admission was cough, spit, debility and stiffness in left knee. No previous illnesses. History of syphilis (paternal). His condition began with cough nine months prior to admission and he was treated for bronchitis, After a course of treatment for bronchitis as the condition did not improve, phthisis was suspected, and the patient admitted to the sanatorium. On admission he was poorly nourished and anaemic and showed evidence of retarded development. He showed old skin cicatrices about the mouth, but the teeth showed caries but no "pegging." Pigmentation of skin, was present over the thighs, and there was also some cervical adenitis, the glands being small and hard but not tender. Knee jerks were present and/

and active on both sides. The pupils reacted to light and accommodation.

Examination of the chest revealed dullness over the right upper lobe posteriorly from apex to spine of scapula. Diminished expansion of right apex and vocal resonance increased over upper half of right chest. Vocal fremitus increased over right chest, breath sounds were harsh vesicular throughout right lung and at left base. There were no accompaniments. Weight on admission 79 lbs. Other systems were normal.

Progress: For the first three months after admission the temperature varied, rising occasionally in the evenings to a maximum of 99.4° F. Sputum was mucoid in character but not excessive, cough troublesome at nights. There were no night sweats. Shortly after admission patient complained of stiffness of left knee. Examination showed fullness from synovial exudation and fluctuation, but no tenderness over the joint. An increase of $1\frac{1}{2}$ inches in circumference was present over the affected joint, while there was no muscle wasting and very little impairment of movement. The case was treated for tuberculosis by open air/

air methods and rest, and continued for five months. There was no appreciable difference in the condition, the cough and spit being still troublesome. The arthritis although the joint had been kept immobile for six weeks, showed little improvement. The sputum was found negative to the tubercle bacilli after repeated examination. A blood test was taken on 24th February, 1921 and was found to be definitely positive to the Wassermann reaction. In view of this fact and from the external signs of syphilis along with the absence of tubercle bacilli in the sputum it was decided to try antisyphilitic treatment.

An ordinary course was started on 5th March, 1921 and the patient remained on rest for the first month. He showed no signs of intolerance but went steadily forward from the commencement of this treatment. His colour gradually returned to normal and after the fifth week the knee joint showed no swelling or fluctuation and the movements became full and free, his cough and spit gradually diminished, his appetite improved and he steadily gained in weight. At the end/

end of his first course he was able to walk and the temperature remained normal.

A second blood test still showed a positive reaction and he was accordingly put on a further modified course.

He was able for the first labour grade in June 1921 and from then onwards he progressed until he was able for the highest labour grade in August. He had no remissions and was discharged fit for work in October.

From his admission till his discharge he had gained 30 lbs. in weight.

The lung condition improved under antisyphilitic treatment and in October prior to discharge, examination revealed considerable modification of the breath sounds with no accompaniments. The area of dullness had not greatly diminished but the chest movements were fuller and the expansion increased. His blood reaction in October was partial.

Altogether the result of treatment in this case was very satisfactory, as the boy increased in weight, his natural colour returned, and the cough and spit almost disappeared/

disappeared. He became much brighter and more boy-like and mischievous. He was discharged fit for work in October 1921 and the latest report of him (February 1922) was that he was doing well.

Case History No.4.

Esther McB. (female) Age 17, admitted to the Tuberculosis Dispensary for phthisis 19th July 1920 and transferred to Ashludie Sanatorium 31st August. Her complaint on admission was cough, spit, dyspnoea and wasting. Previous illnesses scarlet fever and measles in infancy. History of syphilis (hereditary). Present condition began with cough eighteen months prior to admission.

On admission she was poorly nourished but the chest moved full and free on inspiration. On examination there was dullness over the right upper lobe in front to the second rib and to mid scapula behind, vocal resonance increased over right apex, vocal fremitus was unaltered. Breath sounds were harsh vesicular at first interspace and above clavicle over right apex with occasional faint rhonchi (inspiratory) bases harsh vesicular with no accompaniments, harsh vesicular breath sounds with prolonged expiration over left upper lobe and there/

there were no accompaniments. Weight on admission 90½ lbs.

Progress: Patient was treated for pulmonary tuberculosis for three months after admission but there was little progress noted. The cough and spit continued to harass the patient along with occasional night sweats. The sputum was scanty and muccid in character showed no evidence of the tubercle bacillus after repeated examination. The temperature during the first three months though slight was intermittent in character with evening rises to 99°F. It seldom rose above this level and it appeared to correspond in time to the menstrual periods. On going carefully into the family history of this patient it was found that the father had contracted syphilis in India many years previously and had not received adequate treatment. The mother had been infected, and had received treatment at the V.D. Clinic in Dundee. Three sisters and two brothers all gave a positive Wassermann reaction and the youngest brother and sister were under treatment for hereditary syphilis. As our patient did not improve under sanatorium/

sanatorium treatment and as there was suspicion of syphilis supported by a strong positive Wassermann reaction taken on 18th December, 1920, she was referred to the V.D. Clinic on 20th December 1920.

She received a long course of antisyphilitic treatment until September 1921, when it was stopped. On her revisiting the Tuberculosis Dispensary on September last it was found that her Wassermann reaction was still positive.

Her general condition had greatly improved as had her weight and bodily vigour. The cough and spit had greatly diminished and there was no dyspnoea and no night sweats. Her colour was much better and she had gained 15 lbs. in weight from the commencement of antisyphilitic treatment.

The lungs on examination on 23rd February 1922 showed signs of induration much as previously described, but the breath sounds were much fainter over the dull area and there were no accompaniments. Patient has been attending the Dispensary regularly since September last, and appears to be steadily improving, her appetite has returned/

returned and she is anxious to start work as soon as possible. After a rest of six months she will undergo a further period of antisyphilitic treatment at the V.D. clinic.

CLASS C. 2 CASES.

Case History No.5.

Elizabeth L. (Female) Age 31. Admitted to the Sanatorium for pulmonary tuberculosis 9th September 1921. Her complaint on admission was cough, spit, dyspnoea, hoarseness and night sweats. History of pleurisy six years prior to admission. Family history to indicate hereditary syphilis.

Present condition began with cough in July 1921 and since then she had become weaker and had lost weight. On admission she was poorly nourished and had a sallow complexion. At this time also she had a papular eruption on chest and back.

Examination of the chest revealed dullness over right upper lobe to level of third rib anteriorly and to upper border of scapula posteriorly. Vocal resonance was increased throughout the right lung. Vocal fremitus was increased all over right chest. The breath sounds were broncho vesicular over dull/

dull area with fine inspiratory râles over the lower angle of scapula. There were a few rhôchi at right base. Left lung, the breath sounds were harsh vesicular throughout with no accompaniments. Other systems normal. Wassermann reaction definitely positive 19th September 1921.

Progress: On admission patient had a persistent hard cough with a copious muco-purulent sputum. The sputum was positive for the tubercle bacillus, but showed no evidence of spirochaetes after repeated examinations. She was poorly nourished and was subject to night sweats, and dyspnea. At first she complained of vague pains in the chest and hoarseness. There was marked aphonia. Her weight on admission was 100 lbs. From 9th September 1921 until January 1922 patient was treated for pulmonary tuberculosis. The temperature on admission and for first three months after was intermittent in character rising fairly often in the evening to 99° or 100° F. The pulse during that time was regular 80 beats per minute. of moderate tension and showed no thickening of vessel walls. At the beginning of January 1922 as the case appeared/

appeared to have improved a little, attention was directed to the possibility of syphilitic participation. She had a positive family history of syphilis, strong positive Wassermann reaction and had on admission a suspicious papular rash. Her sallow complexion was also evident.

On 4th January it was decided to try anti-syphilitic treatment administered cautiously, carefully watching for signs of intolerance. From the commencement of this treatment she showed no untoward symptoms and was given the ordinary dosage.

During the week after the second injection the temperature gradually fell to 98°F, Later still, in the fourth week, it pursued a normal course and has done so ever since. After the completion of an ordinary course it was observed that the patient improved felt much better generally and her colour gradually returned to normal.

Her weight increased slightly and is now 110 lbs. She takes her food better and feels an increase in bodily vigour and is now able to sustain the second labour grade.

Prior to the commencement of antisyphilitic treatment/

the treatment the patient was subject to relapses and was on these occasions confined to bed. She has had no relapses since 12th January. Toward the end of February the laryngitis became less marked and the voice grew stronger -- she now speaks clearly and distinctly.

In October 1921 patient had a dry pleurisy in left lateral base which cleared up in about fourteen days after appropriate treatment. She complained of occasional pain in this region for weeks after but lately she has had no further trouble.

Although the cough has become less severe and the sputum less in quantity still there are much the same physical signs in the chest as previously described. On the whole antisyphilitic treatment appears to have helped this patient and it is hoped that in continuing the treatment until such time as the blood is rendered negative to the Wassermann reaction, the patient may be better fitted to cope with the co-existing tuberculous condition.

Her second blood test on 20th February last was negative to the Wassermann reaction.

Case History No. 6.

William E. (Male) age 26. Admitted for pulmonary tuberculosis 26th July 1921. His complaint on admission was cough, spit, dyspnoea and night sweats. Patient is a discharged naval petty officer and contracted syphilis while on war service. He received a short course of antisyphilitic treatment during a period of leave. Previous illnesses -- influenza in 1918, on admission he was emaciated and had marked dyspnoea. There were no external manifestations of syphilis.

Chest examination revealed diminished expansion over both apices with retraction (supraclavicular). Dullness over both apices and over left lateral base. Vocal resonance increased over these areas. Vocal fremitus was better conducted over left side of chest. Breath sounds were harsh and high pitched vesicular throughout both lungs accompanied by loud rhônci. There were no moist sounds. Other systems normal. Weight on admission 108½ lbs.

Wassermann reaction definitely positive on 2nd August 1921.

Progress: On admission patient had a persistent harsh cough with copious muco-purulent sputum. The sputum showed the presence of tubercle/

tubercle bacilli, but there were no spirochaetes to be found. He had marked dyspnoea at times and night sweats were frequent.

Temperature for first nine weeks was intermittent in character with high evening rises to a maximum of 102° F. on September 27th 1921. A course of sodium morrhuate was given beginning with 5 c.c. of the sterilised solution and increasing the dose at weekly intervals and completing the course in the sixth week. From then on until the second week in November the temperature dropped and seldom rose above 99° F. in the evenings.

As his general condition seemed to have improved slightly and as the temperature gradually reached normal limits, it was thought advisable to try antisyphilitic treatment. This seemed advisable in view of the fact that he had acquired the disease and that it was doubtful whether he had received adequate treatment at the time. The positive Wassermann rendered the specific factor a possibility. On 15th November an ordinary course was commenced/

commenced beginning with .15 gramme Neckhar-sivan. During the initial stages the patient showed no signs of intolerance and the temperature remained more or less steady. On 10th January 1922 however, the temperature again became high and irregular and the pulse rate increased. Antisyphilitic treatment was stopped. He has been confined to bed since and the temperature has continued irregular and the pulse rate high. He still has the persistent cough and copious sputum and his lung condition shows little if any change in the physical signs. It appears that he derived some little benefit from antisyphilitic treatment in that his weight slightly increased and his colour improved and he states that he "felt better" after the injections. The latest report of his Wassermann was a negative reaction of 22nd February last. It is not proposed to continue antisyphilitic treatment.

CHAPTER XV. CONCLUSIONS.

From the above investigation I have formed the following conclusions:-

1. That many cases at present accepted as cases of pulmonary tuberculosis are really suffering from syphilis.
2. That many cases known to be suffering from pulmonary tuberculosis are also suffering from syphilis.
3. That in the tuberculosis dispensary and in the sanatorium the routine might be improved by the examination of the blood of each new case with a view to ascertaining the presence or absence of syphilis.
4. That, if along with a positive Wassermann reaction there is the faintest evidence in clinical signs or history, then the presence of syphilis may be considered as definitely established, always remembering the possibility of concurrent diseases such as tuberculosis.
5. That where the reaction is doubtful the test should be repeated at monthly intervals, for six months,
6. That, subject to the provisions of Conclusion No.4, a positive Wassermann reaction is sufficient to justify an attempt to treat the patient with antisyphilitic/

antisyphilitic remedies.

7. That, as the percentage of discrepancies is so small, I am inclined to think that even in the absence of any evidence of syphilis, either clinical or historical, a patient suspected to be suffering, from pulmonary tuberculosis, who also gives a positive Wassermann reaction, should be treated with salvarsan substitutes. The part played by syphilis in the causation can then be more definitely established when the results of such treatment are determined.
8. That when pulmonary tuberculosis and syphilis co-exist sanatorium treatment and antisyphilitic treatment are indicated. In such cases the greatest care is necessary in administering antisyphilitic treatment any signs of intolerance being noted and the treatment withheld should such signs appear.
9. That our conclusions from the point of view of ~~progress~~ ^{Prognosis} may have to be modified in these cases which prove to be entirely or partially syphilitic in nature.
10. That the percentage of positive Wassermans is high enough to justify the close attention of local health authorities and of the central bodies concerned with health administration.
11. That/

11. That any factor which will reduce even to a small extent the number of cases requiring sanatorium treatment must be closely examined, and similarly, any form of treatment which will tend to shorten the period of residence in the sanatorium must also be fully investigated.
12. That if the diagnosis of syphilis and not tuberculosis is established, the majority of such cases can be dealt with as out-patients, either at the consulting rooms of a private or panel practitioner or at a local authority's venereal diseases clinic.
13. That the number of foci of tuberculosis infection in any area will be reduced and more attention can be given by tuberculosis medical officers, tuberculosis nurses and sanitary inspectors etc. to undoubted foci in their endeavour to prevent the spread of tuberculosis by education, isolation and disinfection etc.
14. That if tuberculosis can be excluded, many cases which receive antisyphilitic treatment can continue their employment in the ordinary way and thereby cause less interference with the productive power of the community and of the state.

15. That although the number of cases really suffering from syphilis may form a very small proportion of the total, still the total is so enormous and the results of the disease so far-reaching, that any light which can be thrown on the subject demands attention.

END.
