

THE TREATMENT  
OF  
ADVANCED PHTHISIS.

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## THE TREATMENT OF ADVANCED PHTHISIS.

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In approaching this topic I am aware that it has afforded pabulum for study and thought and that many writers before and during my day and still, are deeply immersed in the patient elucidation of problems connected with this wide field. It has baffled the scientist and the physician alike. To obtain a thorough knowledge of it we must go into history to some extent.

It is important that we get correct data. Victor Hugo tells us of a historian who proposed to write a history of France. He was unlike other historians for he was not going to consult the works of other historians. He kept his word and when the history appeared it was computed to contain at least ten thousand blunders, shewing that his plan was faulty.

It is a long time since the public of this, and other countries, became aware of the presence of a disease which was lingering, killing by inches, but was in the long run pretty sure to kill. Pursuing a fairly definite course. The person afflicted with it was observed to develop a certain lang<sup>uor</sup>~~age~~, a <sup>language</sup> sharpness of visage and shortness of breath, cough, loss of appetite and general inability for prolonged exertion.

In addition to this, heats and chills, and a certain persistence of febrile state which, accompanied by wasting of the body, proceeded to a fatal issue.

In most cases the organs of respiration were seriously involved. Cases where Blood, Heart, or digestive organs or the general state of the patient have always been a feature or incident in the series of cases of the disease. That is to say each of these constitutes a variety of type of a disease, variously named "Decline", Consumption, Phthisis, "A Wasting", General Decay, etc., and latterly and more definitely Tuberculosis.

What is Tuberculosis? The prevalence of Tubercle in the organism. Is it only recently known? Certainly not! We may turn to Aretæus on Phthisis and read a physiognomical description of the disorders and a most minute, exact pen picture it is, shewing us how accurately he had taken his notes of it, but to come nearer our own day let us consider for a moment a few words from Audral, Professor in the Faculty of Medicine of Paris, in the year 1831. Audral tells us "The nature of Consumption is this:- numerous hard, greyish bodies are deposited in the soft, elastic, spongy tissue of the lungs themselves. These are commonly at least, very numerous. They are sometimes in clusters and sometimes scattered all through the lung; often extended to both. These small bodies are called Tubercle. It is their nature to enlarge and

begin to soften in the centre, to break down into a fluid mass. The lung immediately surrounding a tubercle which is undergoing this change, becomes inflamed, a communication is established between the softened tubercle and one of the many manifestations of the air passages and thus the tubercle is expectorated in the form of a yellow and purulent fluid. When the tubercles are in clusters many commonly break down together and being expectorated leave a cavity in the lungs. If the tubercles are not numerous all may be thus got rid of but this is rare. The cavity may be obliterated or cicatrised and a person affected with true consumption may thus recover."

These are Audral's words and they are very interesting to us to-day in the light of recent events, or rather in the light of knowledge of a more recent date. When we approach our day we come to an Epoch when scientific investigation has been brought to bear upon a theme of vital interest to mankind as a race. About the year 1879 it was thought by pathologists that consumption was due to a virus, that it resembled in its course a specific fever, long drawn out, and later as we all know Koch attracted world wide attention when, it was affirmed he had also discovered the cure of the disease. This turned out to be incorrect but he certainly has advanced our knowledge and earned the plaudits and thanks of all his fellows when he has so far advanced

our knowledge. At the time of the alleged discovery of the cure, Koch published a paper giving an exact description of a recent case of acute tuberculosis. All who read it and who were intimate with the disease could not but be struck by the exactness of the terms as to the happenings in such a case. The temperature chart, the skin rash, its evanescence, the pupils of the eyes in a tubercular child with an acute exacerbation, all remain fixed in the mind as a graphic description of real facts. We are so far anticipating the modern aspect of the question but we must not do so prematurely. Trained and qualified in the earlier eighties one remembers quite clearly the positions laid down by revered teachers at the time - how acute Catarrhal Pneumonia frequently ran into Phthisis, also Chronic Bronchitis even in the advanced period and also in the life of the patient. I clearly recollect in the Wards of Edinburgh Royal Infirmary being asked by the Visiting Physician what was the special danger as regards prognosis in a case of the latter and my answer running on into Phthisis was quite his own opinion and in regard to the former affection contemporaries of my own can recall clearly how the late Professor McCall Anderson taught it, as also he taught and proved its curability, by certain methods of his own which I believe I have verified in a practice extending over thirty odd years. These are all interesting facts in

in the light of to-day and a careful practitioner observing and studying the disease knows the history in individual cases varies. We have cases where the anaemic condition of the patient attracts attention first. The heart also shews signs of weakness. We have early haemoptysis and rapid breaking down of strength and early fatal result. Again we may meet with cases where anorexia and poor digestion leading to early break down, accompanied by shiverings and collapse, temperatures and anon during more active stages hyper pyrexia, temperatures denoting ulceration going on and periods of quiescence during which a certain amount of health is enjoyed, the fell disorder to return again with renewed vigour and tenacity, proceeding to the larynx and lungs and latterly and finally cutting off the patient after perhaps a period of four years from its first appearance. This is a history of cases which I should classify as intestinal cases in the adult.

Again we see it in the child in a different form. A child say of 3 to 5 or 6 years old loses the foot becomes dull, listless, tired, wants to be nursed. The skilful practitioner scents danger, gives careful doses of grey powder, enjoins care and rest, careful feeding, - all of no use, the child suddenly has a fit, from which it may or may not recover. In the latter event to pass through the painful stages of Tubercular Meningitis

or what is perhaps more merciful, dies of its first seizure. To make the contrast complete as regards type of case we have the Tabes Mesenterica among children the analogue of the intestinal case in the adult. We are dealing with a disease which is protean in its methods of shewing itself and each and every case demanding frequently special consideration on its merits as regards medical treatment. Which of us before the days of Sanatorium treatment does not bear in mind the methods inunction of Croton oil under the clavicles in chronic Phthisis once a week or less frequently. Painting with iodine at regular intervals, medicines to allay cough, or other prominent symptoms such as diarrhoea, cod liver oil. I remember yet the visage of a poor emaciated patient in the wards of the Western Infirmary who kicked at the latter and the physician solemnly assured him cod liver oil was the best friend he had in the world, and in a retrospective mood do we not all remember the promiscuous mixing up in Hospital Wards of Phthisical cases. Coughing and spitting and inmates for weeks and months. Haemorrhage and tubercular sputa finding its way into open spittoons.

The dawn of Robert Koch has happily altered all this for it has been shewn that Phthisis is an infectious disease and that precautions against infection must be taken. The cubic space of sleeping and living apartments

must be carefully looked after and an abundance of fresh air and sunlight ensured. Besides this the sputa must be very thoroughly rendered innocuous by making the patient careful about spitting, using closed receptacles when requiring to expectorate and using disinfectants so as to keep down the risk of sputa getting dried and disseminating the germs of the disease by being carried by means of the atmosphere. The danger is a real one to the healthy although we do not say that consumption is infectious in the same way as Scarlet Fever and Small Pox are infectious, yet numerous instances proving the fact are within the knowledge of medical practitioners dealing with the disease. One instance, en passant, I give is that of a young man of twenty years of age, came to me some few years ago. He suffered from Phthisis, well advanced and maintained his conviction he had caught it on a sea voyage in the bunk he occupied on board ship. Be that as it may. In my neighbourhood he came to reside with an uncle's family. The house a one story cottage and attics. His cousins in the house numbering four, all more or less the same time of life, and the patient lived there some two months. Some three months thereafter two daughters of the house exhibited distinct signs of Tuberculosis. Both became highly febrile and were confined to bed for many weeks. The younger recovered completely with medical

care and supervision but the elder never did. She passed through all the phases of consumption and died eventually three years afterwards. <sup>that this was so</sup> ~~I believe this to be~~ case of infection I most thoroughly ever. The disease was brought to the place. Personally I entertain a distinct idiosyncrasy in regard to certain types of the disease. I would not like to live in a dwelling house with certain cases of Fibroid Phthisis. I mention it as a sense or as a recognition real or imaginary as a personal danger. To prove it would tackle all my scientific acquirements but it happens that I have had a patient residing as a visitor for a week or two, the subject of Fibroid Phthisis and I confess to a feeling of very thorough apprehension all the time that person resided in my house and I contrast it with the case of a member of my own house who developed the disease about 1885 and died in 1890 beginning as intestinal Tuberculosis and at first regarded as Typhoid Fever, with exacerbations of temperature during acute attacks, temp, 105, frequently in the mornings and then months of quiescence ensuing but finally emaciation developing Laryngeal Phthisis pulmonary phthisis with nummular sputa and carrying off the patient in January 1890. I can safely assert I personally never felt a qualm of danger in this case from its commencement till its close.

There has always existed a belief among people medical and lay as to the possible infectiousness of consumption and the more common tradition of a wife nursing her husband through it and afterwards falling a victim to it herself . I personally have heard of such cases yet it is noteworthy that in the British Medical Journal in August 1873 Dr.Re Payne Cotton of the Consumption Hospital of Brompton with the undoubted opportunities for observation denies that the disease may be communicated by emanations from the lungs and skin of a patient. No such case, he tells us, was ever heard of in the records of that Institution. Still even at that date and before, we find that its infectiousness in the manner specified was an opinion held by Parkes, Budd, Morgagni, Laeennec, Audrel and Sir James Clarke. This is interesting when we think of our present day knowledge of the disease. During recent years the advance has been great in the study of all questions relating to Tuberculosis. Koch's discovery of the Bacillus in the eighties marks time in a most significant way and Physicians since then including Dr Koch himself have seriously applied their powers to try to discover some agent which would modify the Tuberculous process in the direction of relief or cure. It cannot as yet be said that any specific method of treatment has been found but the work done is never-the-less fruitful of results. Our knowledge

of the disease is much more exact, its pathology, methods that the diminution of the mortality from Tuberculosis may be attributed to the Sanitary and Hygienic surroundings and habits of the people rather than to any special measures directed against this disease in particular.

Now, has there been any deviation from the steady progressive decline of the Tuberculosis death rate to indicate that our more exact knowledge of causation has resulted in any marked effect on the mortality from the disease?

It is necessary to enquire seriously into the reasons for the apparent failure of Preventive Medicine to produce any marked effect. The question may assume another aspect; viz:- Is the lessened death rate not due to a diminished case mortality, the result of more successful treatment. Probably both diminution as regards prevalence and lessened case mortality both enter in. It is difficult to be quite sure. Without complete notification of the cases we must remain uncertain whether the prevalence of the disease is lessened and life therefore not so much menaced by it the result of preventive measures or diminished case mortality from more successful treatment it is hard to say. Compulsory notification of the disease is necessary before we can be sure.

Difficulties have been allged against this measure and objections raised. They are objections to difficulties the result of notification rather than to notification "per Le". Next in importance to obtaining all possible *traps* of diagnosis and methods of treatment at the present day are more rational and productive of better results than was the case before Koch gave to the world the results of his researches. One of the principal features of the present day treatment is the administration of Tuberculin. Opinions on the Efficacy of this are far from unanimous still one can say with all safety and truth that things look more promising and that there was a danger at one time of Tuberculin sinking out of sight and being no more heard of. This has been averted and there is still promise in it. It can quite well be *deduced* that it has done good in many cases as there is also solid truth in the statement that certain cases are much better without it. I propose to speak of the modern methods of prevention and treatment of Phthisis and to try to estimate the various measures. Prevention is better than Cure, so 'tis said, and can it be prevented? If so, let it be by all means and there is a steadily growing concensus of opinion that it is preventable. Many and great questions enter here but we pass them meanwhile with the general observation that preventibleness of phthisis is a matter of medical belief. For more than twenty years back there has been a gradual diminution of

the death rate from Tuberculosis and the incidence of the disease is less. This decline was evident for several years before the discovery of the Tubercle Bacillus. This indicates that with a diminished mortality from Tuberculosis we have as causes a general improvement in hygienic and sanitary surroundings. Often in a country farm house have I noted an immediate improvement where a patient with all the signs of phthisis somewhat suddenly supervening viz., febrile condition, Haemoptysis, visible wasting with cough, was removed from an upper *Cam Soled* unsatisfactorily constructed bedroom, down to one of the airier reception rooms, converted into a bedroom and this with carefully dieting and regimen gradually resulted in case clearing up and getting well. Hygienic surroundings are of vital importance in this condition and it is a great step in advance that people are being educated as to habits and sanitary surroundings. The death rate steadily declining shews a more precise knowledge and exact reasoning.

Preventive medicine can do much and it is right that it be most seriously considered in this great problem of Tuberculosis and its prevention. A most important factor I should say is complete notification. This will aid greatly both to give us certainty as to prevalent mortality from it and it leads the people to know the importance of hygienic habits and rules.

The people should be thoroughly taught about the disease and it is gratifying to see that much in this direction has been already done. Health authorities and preventive associations have focussed their activities on notification of the disease, the establishment of Sanatoria over the Country and there exists no doubt that they have done excellent work in this way. One of the earliest I remember hearing of was Kordrach and it seems to have done excellent pioneer work in that department. There is undoubtedly great value in Sanatoria. The patient is trained to regulate his life in a hygienic manner and he continues to do so after he leaves the Sanatorium. Strict care becomes to him a second nature. He remembers the rules. How he was kept rigidly indoors when he was feverish, his diet was regulated and the vital importance of Fresh Air impressed upon his mind. Still as Dr. Camac Wilkinson has pointed out only a fringe of the subject is approached by Sanatorium treatment. This is quite true but when we think of the care given to food and the physiological exactness with which Calories are estimated out of the various food stuffs it is quite apparent strict scientific lines are followed in these institutions and I think they do immensely good work and the future full of promise through them. It is true only a small proportion of the sufferers from consumption can undergo Sanatorium treatment. The

expense involved in their upkeep and equipment is great and municipalities and the state generally would be heavily immersed in expense to such a degree indeed as to make its universal adoption impracticable. The aim of the Sanatorium is to cure the consumptive, so that they may cease to be centres of possible infection.

Cases for Sanatoria have to be carefully selected. The early stages and before the patient has completely broken down and cases holding out a hope they may be kept in sufficiently long to have a cure effected. A great deal of controversy has of late taken place under this head. Still in the Nordrach early days, very unpromising cases turned out well and Dr. Walthier did not seem to be afraid to admit many very precarious and critically placed cases. For prophylaxis it is, I should say essentially important that early cases get the benefit of Sanatorium treatment. If too advanced there is a difficulty in retaining the patient long enough and this shews one the importance of early recognition of the disease. Sometimes the patient does not seek advice and for this the practitioner is not to blame. It always is important to examine persons in contact with Tuberculosis. A systematic examination of "contacts" will often shew the presence of early Phthisis in patients who otherwise would not seek treatment. The systematic surveillance of children in our day schools should also be done, at regular fixed intervals.

Systematic Visitation of houses where it is known cases are, to have contacts examined and here it is necessary to say, the work should be done by men well trained and efficient in chest examination for the early evidence of Tuberculosis is easily overlooked. I have related some cases already shewing the great importance of looking after "contacts" and I should add to these a boy in same family who developed abscesses, running down the psoas muscles in either side. Certainly I group this boy with his two sisters as infected with Phthisis. Fortunately, he got home after having been in hospital for six months and the hospital authorities ordered his removal as an undesirable, and a very likely hopelessly placed ~~case~~ <sup>Case</sup>. I can testify that fresh air and Tuberculin cured him and he is running about perfectly well with a high heeled boot on one side it is true. I have noted cases where the disease was unknown in father and mothers families and cases coming home with all signs of incipient phthisis and if my opinion is of any correct value such cases are frequently very intractable and hopeless from the beginning. They are generally characterised by free haemoptysis as a symptom and not amenable to treatment. Just this year I noted in a single house a series of three deaths undoubtedly the result of infection. The man is an engine driver who is the father of the family. His wife a somewhat slatternly woman of drunken habits has a large family of

children, some grown up and at work luckily for themselves have left home, but there were four or five left of varying ages, 16 years., 14 years., 12 years.; all girls. The eldest took ill first. She developed early in January 1911 languor, *leucopenia* anorexia, cough, haemoptysis and speedily became bed-fast. Her illness was of such a kind as to preclude any idea of removal. Probably bad diet and altogether unhygienic conditions started her case, but she died in three months and it was not one month after her decease till a younger sister followed her, although precautions were taken by the Health authorities. A third case followed in which the child recovered but swam for its life for months. I was thoroughly confident it was a typical example of infection in Acute Phthisis.

Any consideration of Phthisis must include a careful weighing of Koch and the German School generally and this will come on in this Thesis later. What we must bear in mind at present is the fact that while we speak in other departments of medicine of "Typhoid Carriers" we must not forget Tuberculosis Carriers. Certainly careful isolation of the patient is most essential and happy he who can carry it out especially in such acute cases as I have adverted to. Open air and rigid destruction of all possibly infectious discharges are things the family doctor must never neglect.

There is danger of infection by contact in Phthisis just as in Typhoid individuals, who, whilst apparently in good health yet harbour in their bodies the causative micro-organisms of Enteric Fever which they excrete and infect others. Now in Tuberculosis we may say the same danger exists. The same thing may be said of Diphtheria. In an epidemic it may be so carried; people who, escaping themselves give it to others, the bacilli being in the mouth and faeces and expelled by coughing. An enquiry then is useful in considering the disease. There are individuals who not in robust health perhaps have granular kidneys. They are not suspected of Tuberculosis but yet they are excreting Tubercle Bacilli and possibly infecting others. There may even be persons in apparent good health and who may nevertheless be carriers and disseminators of Tubercle Bacilli and so infecting others.

While grouping the three diseases for purposes of illustration we note that the Toxin theory applies to all three Tuberculosis, Typhoid and Diphtheria. Kayserling of Berlin (Tuberculosis Leipzig 1906 p. 240) referring to the subject of Tuberculosis Carriers suggests that they give off no bacilli but harbour them in the body for months or years until some accident or illness renders the soil fertile and they become actively tuberculous and thus centres of infection.

It is also interesting to note in connection with the Tuberculosis carriers question that any tuberculous focus may be present in the body without any pathological changes either microscopical or macroscopical being discoverable. Thus Harbitz pointed out that a large proportion of school children were in this sense the subjects of latent Tuberculosis. Now, this is no doubt quite true but it is perhaps just as true that this may be carried further back for it may be they are born so. I noted at one of the Tuberculosis Conferences a speaker remarked Koch lost sight too much of Heredity, in this remark I concur. He did undoubtedly. That there are people of Tubercular constitution from the outstart is a fact which I cannot conceive any man in active practice of his calling who would deny it. You get a case to examine, an apparently healthy person. You detect in course of examination a dull right apex. There is no particular complaint. You have there, however, latent disease, which may one day light up and become active. I have seen it in the course of my experience; and again a young child at play sustains some injury to foot perhaps. Later Tubercular Meningitis develops, carrying off the patient. These are cases of latent Tuberculosis and something more. They may become centres of infection it is true. The Lymphatic glands may be the prominent organs affected in these Latent cases

but a similar condition may occur in other organs and tissues even the lungs. It has been suggested that the Bacilli in these centres of Latent Tuberculosis may have their virulence diminished and it may be that although virulent their power for harm is counter-balanced either by the activity of protective agencies in the individual or because the bacilli are isolated and cut off from communication with the rest of the body. In any case if this infective material were to gain entrance into some other individual whose tissues furnished a fertile soil, disease might result. We do not know how long tubercle may remain latent. I should say it may be so for a life time easily enough and be transmitted even then. Still we must not forget that in latent Tubercle there exist the possibilities of danger to others and we want to get at the usual everyday experience of the general run of Tuberculosis as we meet with it. In this regard we may quote Harbitz again (Unter suchengen uber die Haufegkeit etc., der Tuberculose 1905) where he suggests it is only a few months or at most a couple of years this period of latency. The first case I have just referred to of my own certainly became active within the latter period of time. Conjecture apart however, there exists no reasonable doubt that many cases of Tuberculosis remain undetected and become sources of danger, because they are not suspected of being infective

at all.

Squire has drawn attention (International Clinics 16th series 1906 IV p. 90 ) to cases of Chronic Bronchitis such I have already adverted to, Chronic Bronchitis in elderly persons, in whom Tuberculosis has supervened on the Bronchitis causing no new symptoms but merely an exacerbation of existing discomforts, remains undetected although examination of the expectoration would demonstrate the presence of Tubercle Bacilli.

While it is very important to appreciate the infective nature of Tuberculosis we need not push the doctrine too far yet Physicians get awakened from their dreams occasionally and just at this point I will set down a case in my own experience. In January of 1912 a gentleman age 45, came under my care. He was a teacher in a public school and came to reside with a brother-in-law in the neighbourhood of Carlisle, at that time, from Yorkshire. He remained over three months. It was an advanced case of Phthisis numular sputa copious in amount and he was much reduced in strength and weight and Bacilli had been found in abundance. I treated him with Tuberculin etc., during the time he resided there and later he went home and shortly afterwards died. Indeed I was preparing to go to see him at his home when I heard of his decease.

The fact I wish to record is that his brother-in-law, an apparently robust man with whom he resided in Carlisle, and who often remarked to me, if he had known his friend was so far through he would not have had him stay in his house, this gentleman often complained to me of not feeling well during the latter half of 1912. In February 1913, he sent for me. I found him suffering from apparently a feverish cold with hoarseness. He bade me carefully examine his chest. I did and found evidence of dry pleuritic friction on the right thoracic region. This seemed to clear away within a few weeks but loss of voice increased. Indeed he had no voice and a glandular swelling above right clavicle like a chain of Lymphatic glands came into evidence. Latterly he shewed temperatures of <sup>103° F</sup> 103, and had paroxysms of acute exacerbations of distress and he died with indubitably thoracic symptoms. Thinking carefully over the case I must chronicle my conviction it was a case of infection by the Tubercle Bacillus.

Therefore though not laying down infectiveness in the same sense as we would in measles and scarlet fever I do believe that the danger of infection in Phthisis is far from being chimerical and the importance of this is very great.

Parquharson in a recent paper (Lancet 1910, V ii. p. 234, points out the necessity of prophylactic

measures, such as, the prevention of spitting, the disinfection of sputa, the thorough cooking of meat, and boiling of milk but would deprecate the view of of regarding Tuberculosis as a dangerous infection. Personally I have indicated ~~personal instructive~~ aversion of certain cases of phthisis. There is no doubt that many consumptives can trace the commencement of their illness to close association with an advanced case of consumption. It has also been proved experimentally in cattle by Dr Cobbett that infection was the determining influence, susceptibility playing a minor part (B.M.J. 1909 V. ii. p. 867). The experience with heads of cattle proved that once a herd had been cleared of Tuberculosis members and the cowsheds had been purified, the herd could in the absence of fresh importation of disease be kept permanently free from Tuberculosis without any change in other conditions of environment.

Just as I have indicated early in this paper, the increase of knowledge in causation and pathology is a subject on which many books have been written. One might devote a great deal of time and space to trace modern theory and practice on the subject. Bacteriology teaches us most interesting data since Koch's day as to Tubercle Bacillus. We have Metchinkoff and his phagocytic theory and when we come into close contact with Koch and his fellow countrymen it is apparent one

could devote many lifetimes to a consideration of the subject of Tuberculosis. It is a perfect mine and apparently far from fully explored yet, in this year of 1914. A great and surpassing interest centres in the Tuberculin Reaction. At the time Koch gave his observations to the world and it was believed the cure of consumption had been found, the remedy of which so much was hoped for and claimed was to be found to be in many cases violent in its effects and dangerous to use. I well remember the curt message I got from a friend in hospital, at the time "It is a frost". Of late again attention is being strongly directed to Tuberculin and it is noteworthy how true Science is progressive. Koch taught us first about the Bacillus and had he done nothing more, in doing that, he has given us an inestimably important stand point and reared an imperishable ~~movement~~ <sup>monument</sup> to himself in our knowledge of this condition of Tuberculosis. Tuberculin was fully tried, relegated to a back seat, or to limbo and again it became apparent it was too much forgotten and now a perfect army of observers have devoted their combined powers of observation and we have their views carefully placed before us. As time moves on we see a host of methods of observation all bearing upon our knowledge of the disease and its treatment, and which one would fondly hope will yet culminate in a definite

cure. We have Chemo-Therapathy etc., I can recall a remark of the late Sir William Gairdner's that he was neither pathy this nor pathy that, in his beliefs. Nowadays however, the wise physician must keep his eye <sup>open</sup> ~~open~~ to these "pathies" all the same or he will find himself out of touch with his time. Koch taught that treatment by Tuberculin known by the symbol T.R. was an active immunising process. We have first fever and general reaction where it is applied in a tubercular subject. In the healthy organism it only acts in relatively large doses. 0.5 cubic centimetres of old Tuberculin kills a Tubercular Guinea Pig. It acts therefore as a true toxin. Quite a host of observers have their various explanations of the reaction. Kertwig Metchinkoff, Ehrlich, Pickert, Meyer, Schmitz and <sup>Woff</sup> ~~Woff~~ Eisner and many others have each their theories in explaining it. Ehrlich whose papers at the last international Congress of Medicine held in London last year excited considerable attention from the association of his name with Chemo-Therapy in the dealing with disease generally in the abstract has his explanation here that a true Chemio taxis occurs. Metchnikoff says it is true focal or localaction produced by Chemiotactic influence of the leucocytes meaning by this that Chemical agents exercise an attractive or repulsive influence on Bacteria the former is positive, the latter negative (Stahl and Pfeffers Laws of Chemio Taxis).

The leucocytes in a tubercular organism become tolerant of T.R. owing to the production of toxin a positive chemio-lactic irritation from increased concentration of T.R. in the foci. The influx of leucocytes causes the focal reaction and the febrile and general reaction is based upon it. Ehrlich says that a positive Chemio-taxis occurs and would seem to believe as well in a septic property of some of the cells involved. I would here agree with that. Cases one sees, so much confirm it. e.g. a child meets with an injury and the history afterwards is a tubercular history. I have seen that and Ehrlich's idea of a pyogenic organism being at work in the Tubercular reaction seems highly and carefully reasoned scientific truth. He also localises the initiatory reaction in the middle layers of three layers of cells which comprise the focus, and his idea of a central caseous and normal tissue round about is just a going back to old time teaching from Clinical observation of phthisis. The Tuberculin reaction did not cause any injury to the normal tissues round about but the middle zone showed the inroads of the bacilli. Other observers have their say, a true anaphylaxis is one. The term is applied to the phenomenon of hyper-susceptibility a condition which is brought on by T.R. It occurs after injections of solution containing foreign protein and shews a lack of protective power, antibodies or antigens not being produced.

We might follow all these scientific theories in detail. It is perhaps sufficient to say that any one following the study of Tuberculosis must become aware of them and Tuberculosis as a subject is enough for all one's time and becomes increasingly interesting. The reflective person who remembers back a quarter of a century and a decade nearly additional recalls the consumptive patient whose illness was interpreted as the result of exposure and neglected cold. He was protected in every way. The pallid, worn, emaciated, perhaps hectic sufferer was metaphorically, as well as in reality, wrapped in cotton wool. Nowadays Aerotherapy or open air treatment is one of the widely accepted facts and as I facetiously remarked once, we used to ask people if they were sure they were warm enough; now we enquire if they are cold enough. Modern treatment of plenty of the open air has come to stay and while it is a truism speaking generally we have to descend into the particular and say that while universally granted as sound doctrine there are numerous details to be considered in connection with the methods of carrying it out and with the various adjuncts to it.

Many physicians favour complete rest for the consumptive patient. It is argued that to heal a congested and perhaps an ulcerated lung rest is essential. Movement would presumably injure the lung both directly and indirectly. While rest is essential and helpful at

certain periods carefully adjusted and insisted upon it can be over much estimated as fraught with our satisfactory results. The patients may seem in many instances to improve. Perhaps they put on weight in large amount. Often they become heavy and corpulent but it is commonly mere fat. The skin textures remain pallid and toneless; the muscular tissue remains soft and flabby, and the individual himself is far from physiologically fit. The practice of continued rest in consumption proceeded from a faulty because insufficient conception of the disease. The attention of the physician was directed chiefly to the local lung lesion and ignored the general or constitutional intoxication. One is struck with the clinical exactitude of the latter and how in course of a case we see periods of quiescence and activity the patient's own tuberculin getting into the circulation at intervals. This may be due to ulcerative changes and I believe that where this is going on we have hyper-pyretic temperatures  $105^{\circ}$ . e.g. Again in the same case we may have a history of shivering and sub-normal temperatures and a difficulty in devising measures to restore heat and active circulation. In such cases of Tuberculosis rest is imperative as well as confinement to bed. But in the generality of cases even in respect of the affected lung itself rest beyond a certain degree, and in special circumstances is fallacious.

Dr. R. W. Phillip (B.M.J. Dec 24th 1910) points out that very satisfactory results were obtained from breathing exercises and other graduated and adjusted movements, at the Victoria Dispensary for Consumption, Edinburgh, more than twenty years ago in the pre Sanatorium period. At the present time most Sanatoria have a system of regulated physical employment for their patients and rest and movement is prescribed according to well defined indications. According to Dr Phillip (loc cit) so long as the Tuberculous process is in active operation toxins are readily elaborated and pass freely to the muscles, with resultant progressive dystrophy. <sup>In</sup> ~~At~~ this case we have an indication for rest. Rest has the double advantage of tending to stay the active local lesions and of limiting the output of energy by the dystrophic muscles.

On the other hand when the Tuberculous lesion is less active or more approaching quiescence, or in the process of arrest and the production and carriage of toxins is correspondingly less abundant and rapid, the dystrophic muscles tend to recover themselves physiologically. When a lung is breaking down rapidly, and there is continued absorption of poisonous products with corresponding systemic intoxication evidenced by rise of temperature, increased pulse rate, and rapid muscular wasting, rest must be the

order of the day. The circulation which is the chief channel of dissemination of the poison, must be kept as quiet as possible.

As recovery is taking place, the aim is to restore physiological function by carefully adjusted movements. It may be that under the influence of activity a process of auto inoculation is instituted that is to say that by reason of the accelerated circulation, a certain amount of toxin is carried through the system. This stimulates the increased formation of auto immunity bodies, and a condition of relative immunity is produced. The amount of exercise must be carefully regulated.

Activity in excess may serve to aggravate the local process. The lung trouble may once more take on an acute character and an excessive discharge of toxins into the system may result.

Where a scheme of systematic exercises has been carried out as at the Royal Victoria Hospital, Edinburgh and in connection with the Brompton Hospital (already cited) at Frenley, the results have invariably been good. At Nordrach the free admission of fresh air and the very stringent conditions <sup>laid down</sup> ~~imposed~~ as to temperature which was taken in the rectum as a rule before the patient got a permit to go out and engage in prescribed exercise which in the winter months included

tobogganing, results also were very convincing as regards their utility.

Systematic disturbance, from excessive activity reveals itself by evidence which is accessible both to the physician and the patient, the symptoms produced being loss of appetite, malaise, headache, and fever. In contrast with patients who feel a progressive sense of wellbeing, healthy appetite and digestion, return of fresh colour to the face and skin and gain in weight where the exercise is agreeing with them.

Besides aero-therapy another mode of treatment must be mentioned about which opinions are not as unanimous, but which is never <sup>the</sup> less being extensively practised by Physicians, treatment by Tuberculin. Tuberculin has undergone many vicissitudes. It already has a literature of its own and so far as one can see it is yet in its infancy. It is of importance in diagnosis, as well as treatment and the Allergia of Von Pirquet has attracted wide spread attention. Von Pirquet <sup>Coined</sup> the word from <sup>"allergie"</sup> (ἀλληγή ἐργασία) to describe changed capacity for reaction and he applied this allergia to the Tuberculin reaction. <sup>72</sup> It is applied to the skin directly, and through the skin to the subcutaneous cellular tissue and inserted into the eye for diagnostic purposes, giving rise to well known phenomena, chief of which is hyperaemia. It has

come in for varying degrees of approval like the entire Tuberculin therapy itself. To go into theoretical explanation would occupy too much time and space, it being understood most of us have made ourselves familiar with the varying ups and downs of it both diagnostically and as a line of treatment.

It would appear to be valuable for the systematic examination of school children if we are to believe Moro who recommends the inunction of a Tuberculin ointment. He also tested the percutaneous skin reaction in a number of child patients in ~~Munch~~ *Munich* University Children's Hospital with the result that of the manifestly Tubercular children 17% did not react.

When Koch in 1890 published his memorable paper, Tuberculin was at first received with loud acclamation. It did not however come up to expectation. This no doubt was the natural result because its potency, its effects, were simply not understood or correctly estimated. For the time it was discarded altogether though recently it is coming again and keen interest being taken in it principally the result of the work of Wright.

It has been put before the Medical Practitioner in a large number of varieties but at the hour most physicians use either Koch's New Tuberculin "T.R." or Bacillary Emulsion. The advice is generally given

to use that dose of Tuberculin which just falls short of giving a recognisable reaction in the form of a rise of temperature. This seems a difficult rule to carry out as if a certain dose produces a slight rise of temperature on one occasion it does not follow that it will do the same the next time. My own practice is carried out pretty much on experimental lines graduating the dose. Yet it is only by obtaining a slight reaction that we can even attempt to carry out the rule. The control of the Tubercular injections by the estimation of the Opsonic Index is altogether a complicated matter and would be liable to error unless made by a person skilled in this method of investigation. It is laboratory work really and would make serious inroads into the time available to any man in the active practice of his profession.

The selection of cases is a difficult problem in Tuberculin Therapy. It is not every case that is suitable and we get warnings of danger in its use. I had one such, quite recently. A young married woman came to me from Partick. She was a native of this district and was evidently the subject of Typical Phthisis. Treating her on general lines as to cough I carried her through a course of Dioradin treatment and essayed to follow up with subcutaneous injections of a minute amount of T.R. Koch's new

1.  
2,000 of a milligramme. She died that week and I had previously formed cheerful views of her, though she was in a most delicate fragile condition. Her demise was extremely sudden. Her mother preparing breakfast, which the patient said she would only take half of her usual to-day, noticed her daughter turn round, give a slight gasp and life had fled.

Many cases are unsuitable for Tuberculin Therapy. Dr. W.C. Bosanquet, (B.M.J. Jan 21st 1911,) states that it is unsuitable in febrile cases. In Pulmonary Phthisis, treatment by Tuberculin has been disappointing. An anti-toxic Serum has been prepared by Marmorek of the Pasteur Institute. It has proved a disappointing remedy. As with Tuberculin better results are got with this serum in Surgical Tuberculosis. This would appear to be the sphere also of a serum called Tuberal manufactured by Dr. Thamm of Berlin. I believe it has acted well in Surgical cases notably in my practice where in combination with aero-therapy it resulted, on free administration by mouth, in discharges ceasing and eventual cure in a gradual increasing dose of 5 m rising to 12 m every morning taken in milk. Koch did not favour any therapeutic results from such, yet in this individual case a lad of 18 years, I believed it did good work and in a case published in Lancet Vol ii 1912, and Medical press and Circular,

same date, I published details of a case of emaciation, Dysenteric symptoms under treatment for 18 months and looked upon by myself and other practitioners called in as hopeless, the patient eventually made a good recovery taking this Serum and rigid attention to dietary, the chief element of which was Carrageen, carefully prepared. He made a perfect recovery and I regarded the case as Intestinal Tuberculosis. He took Tuberal all through his treatment as I say for over 18 months, and is now well. Both these cases were in young adults. In several pulmonary cases it signally failed.

One more case I will make a reference to. A gentleman 57 years old, in 1911, shewed signs of Tuberculosis. He passed winter 1911 and 1912 in Egypt, returned looking ruddier in April of 1912, I have treated him with T.R. <sup>New</sup> 1 2,000 of milligramme he get at present once a week. He besought me not to send him abroad this winter as he felt his surroundings strange and did not like it. At times he has crepitations in both lungs; then again they disappear, and on whole seems with aero-therapy and strict precautions indicated to be doing well. I am sure he considers himself benefitted by T.R. in this minute dose, and he appears to be.

On the whole Tuberculin Therapy at the present time, while it can not claim general acceptance, I

hold it seems to promise well for the future. Scientific methods hold out the prospect that we shall yet gain more accurate knowledge of it as a remedy. It is already in selected cases well worthy of trial and as an adjunct to other modes of treatment.

In regard to general measures in the treatment of Tuberculosis one remembers the caution that it bears a strong resemblance to Typhoid. This class of case is often seen in large towns and very difficult to differentiate in many instances. Diagnosis here is very important, obviously as it affects our subsequent procedure in the interest of the patient.

Cases where we have progressive emaciation, high temperatures, poor digestion, and hold are benefitted frequently by alcohol. I am perfectly clear that in a number of these, what we might call typhoid like tuberculous patients with diurnal high temperatures a valuable arrestor of this is <sup>3</sup> carefully selected Brandy in a wineglass-full of milk and sopped over 2 hours. In this dose it aids faulty digestion and is anti-pyretic. As acute symptoms subside it can be withdrawn or mayhap substituted with 3 iii or ~~3 iii~~ as an aid to digestion at principal meal of the day for say six weeks afterwards.

So much interest has of late years been centred round the Sanatorium treatment and a highly absorbing interest it is, when we see the admirable application

of Physiology to different food values and the easiest and surest way of getting what is wanted in the most economical way. Recently here also round the use of Tuberculin we have an excellent field of observation. The interest of these two is great, so much so that the drug treatment has of late received comparatively little attention.

In the Lancet, Nov 19th 1910, Dr James R Tomblinson published six cases treated by Potassium Bichromate. The cases all exhibited advanced disease, nevertheless the results were uniformly good. The drug was given in  $\frac{1}{4}$  of a grain ( $2\frac{1}{2}$  m. of a 10% solution in water) either alone or in combination with a tonic mixture, such dose to be taken in a wineglass-ful of water after food - at first twice, and later, 3 times a day. Dr David B. Lees advocated continuous antiseptic inhalations. He has published the results of 30 cases of incipient Phthisis in which the treatment has been employed with success. He used the same treatment in 30 cases of more advanced disease with an equally good result in these also. Dr. McElroy recently recorded three cases of successful treatment of Phthisis with intravenous injections of Chinosol with Formaldehyde (Lancet Nov 12th, 1910) but these results are ~~conclusions~~. *not conclusive*

Creasote and a compound of it Creasotal got by distillation and put up in Glycerine form does good in many cases. I am quite sure I have rescued some patients by its means and there is a class of case

where anti-pyrine given daily for ~~reducing~~ heat and a wineglass-ful of sherry once or twice daily. Diet consisting almost entirely of a little soup every three hours and medicinally a dose of Dr. Churchill's Syrup of the Hypophosphates has proved most unexpectedly successful in a case of incipient Phthisis with haemoptysis. The Hypophosphites <sup>prevents, says Dr. ...</sup> should be continued for months after patient is able to go about. Picrotoxin hypodermically to control night sweats is doubly useful as promoting rest. A French Capsule of the active principles of Cod Liver Oil also is a favourite (Chapoteaut) It acts well. The treatment of Phthisis in the early part of my experience as a general practitioner was largely symptomatic. Coming to Dumfries-shire in 1880, I found a case here and there over the district a rural one of some 2,000 souls in my parish. I had previously been assisting in Lancashire where I observed a great deal of the disease. Indeed I had there one day a week devoted to consumptive cases. Practising here two years I, having assumed a wife, removed to Birmingham where I practised 5 years from 1882 to July 1887. I gathered together a large general practice there having records of 5,000 cases yearly, carefully kept and a large sprinkling of Phthisis among them. The disease has so to speak, held for me a melancholy fascination. I treated a dear wife for four years, when she died and its painful

stages are indelibly fixed on my memory as are the following, more rapid calamity when our only child aged 5 years from another child jumping on her foot the playmate wearing clogs, injured her and for six weeks she had variations of Temperature and finally died of convulsion and meningitis, having been comatose 3 days. My interest therefore is no common interest. I have studied, watched and noted the course of it. I can recal cases of cure undoubtedly. One case I remember here when I first came, an acute case of Catarrhal Pneumonia running into Phthisis. I cured by Nehmeyer's methods, Digitalis opium and Quinine, one grain of each in pill. I attended the man who had it six calendar months daily. Another young girl I can recal who was pronounced bad in prognosis at a consultation and she recovered under the hypophosphite line, had temperature 102° and recovered with cicatrised lung having lost half of it. She survives yet as a married woman. <sup>with</sup> In change of climate, scene, and locality Climatic treatment I am a firm believer. High mountain air suits some while others want sheltered situations. The typical country clodhopper is always on trial when he removes to town as regards health. Treatment in many cases is simply symptomatic yet it is not hopeless on that account. I recal early cases as regards my time, several alive yet, who were at varying periods apparently sailing for the rocks. We must not under value our

old friends in remedial line Hyoscynus Quinine, opium. Going off to Ventnor or better Kimberley, South Africa I have seen cases get well and become robust and that in my early days, too, before any Sanatoria existed. The rich have better means to cope with the disease yet however rich the true virus will carry them off. The poor want to be helped. They can't afford to go in for change or to stay off work more than a limited time. The sadness of the disease makes us wish to help them all we can. To see as I have seen a poor newspaper man having to clutch the wall as he passed along <sup>a Crowded Street</sup> slowly dying of phthisis yet working is a sight to remember and what could we do, treat cough, haemoptysis, night sweats etc., and though it was possible to afford some slight relief. Comparing these days with now my personal experience is we are progressing for the better although yet the progress among the poorer class as regards recoveries is very low. No doubt earlier recognition of the disease prevails and the bacteriologist comes to our aid examining sputa and the use of Tuberculin Test in various forms are available. Of these I have not great experience but the use of Tuberculin Ointment (already referred to) as advocated by Moro is simple in application, fairly reliable and apparently free from dangerous after effects. Early diagnosis is a factor, of very great importance, as affecting the prospect of a cure and this (apart from the

advantages derived from fresh air treatment) contributed to my success in treatment of phthisis within recent years.

I have three cases I will take out of my book regarding being fresh on my mind and more or less chronicles.

Case 1. Mrs T.S. married, no children, developed phthisis with well marked consolidation, several haemorrhages, night sweats, etc., Open air treatment adopted by means of a shelter. After twelve months she is now well, that is four years ago. She enjoys excellent health now.

Case 2. Miss E. K. aet 19, well marked phthisis, consolidated right apex. Went to Bournemouth to Sanatorium, sent by some friends for open air treatment for three months. Improved but not cured. She returned to her home, a workman's cottage and for 18 months she underwent the open air at home. She is now well. She had cicatrised lung same as another case I have referred to. It can be detected quite easily, a hollow under the clavicle on the right side.

Case 3. I.R. Sculptor. This is a case of a man who developed Phthisis, had haemoptysis, night sweats, and at times clammy and very ill. Open air treatment 2 months. He visited Leadhills and open air treatment still carried out. He is now well and has been so for nearly two years. He is fully 45 years of age and I

think he is over all his trouble. He is fully at work. I regard him as a *perfect wonder. I have seen him for a year and more!*  
*But assigned death Certificate for him during temporary absence from home.*

Although we can cite occasional cures, one is always ready to work at all such cases as doubtful in prognosis. As a fellow practitioner remarked to me after hearing of L.K. a case of recovery, "anything may happen". I homologate that remark in Phthisis among the working classes. Generally our prognosis is grave and especially so in cases of men. A case I recal. Case of D.D. aet 25. Granite worker, Dalbeattie. Bacillary Phthisis lived 2 years, course steadily downward, yielded to no treatment, serum, creasotal, all tried in vain. I could bracket with this case two others 21 and 23 years old, progress in a downward direction, rapid, no halt, and both died within six months. Both these cases came from town to country. A working man has neither time nor money to devote to Sanatorium treatment even if he gets assistance and secures say three months to six sanatorium treatment, it is all undone in a few weeks returning to old surroundings and compelled to work for his family. The indirect benefit to the other members of the household continued in so far as the patient retains the careful habits inculcated at the Institution and so avoids the danger to others. This is also being done by public health department of our counties where notification of the disease is in force and I have observed its good effect.

The appointment of Tuberculosis Officers is the next step in advance. If the open air treatment be attempted at home as it always should be, success may be attained after patient's return home but it is difficult to ensure the necessary rest and it is likely his working surroundings deny him the necessary fresh air and relapse follows relapse until the patient advances so far as to make recovery impossible.

A type of case one meets in country district is where the disease is concealed, No doctor is called in till the progress is far in advance of any remedy. I refer to one case of recent date, a man of 19 years. His condition when I saw him was hopeless, he appeared to have no lungs and never had medical aid. His remedy was to drink a certain modicum of alcohol every night without this he declared he would have succumbed long before. As it was I signed his death certificate in a few days of my first visit.

I can tell of many instances where partial cures were attained by a few months Sanatorium treatment but where relapse ensued after return to work, The journey home indeed was long, and too much for the patient, and I have no doubt that had there been money available many of these cases would have been permanently curse.

Others again are too late in getting Sanatorium treatment and it cannot always be had when and where

it is required, nor is it possible to keep it up beyond a limited period in many instances.

Now the practical conclusions of this paper are perhaps summed up thus.

1. Pulmonary Phthisis is an infectious disease and although I hold hereditary predisposition is in many instances a dominant influence, yet as far as the less fortunate classes are concerned in our Communities, environment is vastly more important than heredity.
2. That for all classes, and especially for the working classes salvation lies far more in preventive than curative measures and educating people in the vital importance of well aired houses and sleeping rooms is simply teaching them the way they ought to go.
3. That although compulsory notification of the disease would be attended by beneficial results much quicker and more lasting benefit would be attained if general medical practitioners as a whole, would realise the importance of strict preventive measures by the destruction of all infectious discharges and would insist on their being carried out from the earliest stage of the disease.
4. That a few cases of Phthisis can be cured in ordinary scottish cottages by the Fresh air treatment.

Books Read and referred to generally

"Diets in Tuberculosis

Noel D Bardswell T

A. S. Chapman 1908

Tuberculin in Diagnosis & Treatment  
Prof Raudelien & Raepke 1913  
Edition

} German Tuberculosis  
Classics

The Clinical Journal to which I owe  
a lot, which I get every week.

British Med Journal. &=O=

Revue Medicale (de M Lermier)

Par G Andral Professeur à la Faculté de Paris &c  
2 Vols. 1829.

Keels

under general book cover.

I am a somewhat ready writer & write frequently  
without searching for any books  
whatsoever.

This I think is borne out by Contributions to  
Current Medical Journals of the day Lancet Pitt &c

of the most interesting  
Medical Reviews 1910 & 11

5. That we have so far no specific treatment for Pulmonary Tuberculosis. Investigations point that way, which is the way of progress, that even palliative and symptomatic treatment has its good records. That with the activity displayed in its study Tuberculosis is not a hopeless study but full of hope for the future although so far Tuberculin treatment has not arrived at that stage of perfection we could wish, it has unquestionably done great good.

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