

NOTES ON THE MODERN TREATMENT
OF PHTHISIS PULMONALIS.

THESIS FOR THE DEGREE OF M. D.

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NOTES on the MODERN TREATMENT of

PHTHISIS PULMONALIS

During my residence, as Assistant Medical Officer, at Hawkhead Asylum, Crookston, in 1900 - 1901, I had a number of cases of Phthisis under my care, and wished to do something to relieve, if not to permanently cure, those poor fellow subjects, who were both bodily and mentally afflicted.

In order to give the Phthisical cases a better chance and to prevent them from infecting other patients in the sick ward, I isolated them in a separate room.

The windows in this room were kept open day and night, and the patients were put on the best of good food, and treated according to their symptoms and individual needs.

They were all given Creosote in capsule form, and the dose was gradually increased until, -in fact-, the room became laden with the odour, exhaled from their breaths.

They were confined to bed, and the treatment pushed as far as possible, yet in spite of all care, and attention, they gradually became worse, and the disease made steady progress.

They all showed the usual signs of Phthisis Pulmonalis: - Cough, night sweats, with loss of flesh, and increased expectoration. On auscultation there were the typical moist rales, with crepitant sounds.

Some were in a more advanced state than others, and showed signs of cavitation, with expectoration of much sputum.

One case in particular suffered from intractable diarrhoea, to which nothing in the way of medicine did any good, except in the way of giving relief, so as the disease advanced in the chest, and with the exhausting diarrhoea, he

did not last long.

Post Mortem examination revealed extensive disease in the lungs, and the lower part of the large intestine had an eroded or worm-eaten appearance. The bowel was greatly thickened, - due to the chronic inflammation and irritation, and appeared like an almost rigid tube, which had lost the power of retaining any matter, but just allowed it to pass through, and so the patient was always more or less in a miserable condition.

Another of the cases with extensive lung trouble soon joined the majority.

On Post Mortem examination I found his lungs riddled from top to bottom with cavities, and deposits of tubercle.

In this case what surprised me most was, the great extent of the disease in the lungs, and the very small amount of healthy tissue left. It appeared to be almost incredible that he could have lived so long with his lungs in such a diseased condition.

The other cases steadily became worse, and those which I examined Post Mortem showed extensive signs of tubercle in the lungs.

I found that all these poor sufferers were the best of patients in taking whatever medicines were prescribed. There was no difficulty in getting them to swallow the creosote capsules etc. But in spite of all care, and attention, the inevitable end came sooner or later.

My experience of insane patients was, that when bodily disease supervened on their mental condition, they appeared to have less resisting power against the invasion, than those whose mental condition was sound.

The nervous or mental degeneration appears to greatly influence the bodily or physical condition.

The use of creosote in these cases did not appear to

do much in the way of a cure: but seemed only to disinfect their breaths and the air of the room, and also to somewhat relieve their coughs. All I could do for them was to just administer drugs suitable to each individual case, and give them as much ease and relief as possible until the end came.

When I came to Sunderland in 1903 I commenced to treat cases of Phthisis by the Inhalation of Formalin, - which my friend and colleague Dr Bain of South Shields, recommended me to give a trial.

One case, a young lad aet 9 years, with commencing Phthisis was put upon the Inhalation of Formalin.

The preparation used was the following:-

Formalin 40%
Chloroform aa 3 i
Spirit Vin Rect 3 ii m.

Sig:- Begin with 5 drops on an inhaler and increase daily

He commenced with a few drops, which were gradually increased until he had as many as he could bear without discomfort.

On examination: Auscultation revealed tubular breathing with moist rales at apex of the right lung. Loss of flesh, night sweats, and all the symptoms of Phthisis in an early stage were present.

He soon showed signs of improvement. The cough ceased, and the night sweats diminished, and he was out of bed within 2 weeks, and at the end of the month was down stairs.

With good food and fresh air, and the continuous use of the inhalations, he made a remarkable recovery.

His parents could well afford him with everything in the way of good food, and took every care of him.

I was greatly encouraged by the result in this case

and resolved to give Formalin a trial in future cases of Phthisis.

He had a relapse in 1904, but soon recovered when he recommenced the inhalations.

In 1905 he had another relapse, and on taking another course of the inhalations, he was soon back to his usual health.

Since then he has been quite well, and is following a sea-faring life. He was shipwrecked about a year ago, and although he was in an open boat for two days, and went through other hardships, he has never showed any signs of his old complaint, or been a bit the worse.

Another case, a Mrs M, came under my care 5th January 1904. The sputum was examined with negative results, yet in spite of this fact she showed signs of Phthisis. She suffered from an irritable cough with abundant expectoration. On auscultation moist rales were heard. She had lost flesh and her appetite was gone. The night sweats were also troublesome.

She was under my care from January till March 1904 when she was confined, and gave birth to a very delicate child which died shortly after birth. (This event did not tend to prolong her days)

Then I did not see her until July 1905.

The sputum now showed positive results - Tubercle Bacilli, very few in number, short and slender-.

The inhalations were commenced at once, and pushed, but without doing much good.

I continued to attend her up to the time of her death on the 20th October 1905.

This poor woman never had much of a chance. She lived in a narrow stuffy room, and her husband did not treat her very well, but pretty much neglected her. If she had been placed under better circumstances, she might have been able to overcome

her complaint, but in spite of the inhalations she rapidly became worse, and passed away on the date mentioned.

Mr B, Aet 34 years, a young man came under my care in 1904.

Family history. Father died of Phthisis at the age of 48 years. Mother alive and well. Four Sisters died of Phthisis aged respectively 15, 19, 22 and 28 years. The rest of the family were fairly healthy.

His was a typical case of Phthisis. Thin and spare built, with plenty of evidence of the disease in his chest. Tubular breathing and moist rales etc. He was put on the Formalin Treatment, and soon commenced to benefit from that drug's continuous inhalation. His cough became less troublesome, his night sweats ceased, and his sputum scanty. He continued under treatment until August, and improved so much that he was on the look out for work, as he felt quite fit, and had put on flesh.

Against my wishes he gave up the Inhalations which I had desired him to continue throughout the winter months.

He again came under my care in March 1905. I then found that he had had a serious relapse, and although the Inhalations were administered again, and used continuously, he did not show any signs of improvement, but gradually became much worse, and passed away in August 1905.

The way this Patient responded to the Inhalations and recovered health and strength in 1904 led me to believe that he would ultimately recover completely, and I fully believe, that if he had continued the Inhalations for some months longer, and left intoxicating liquors alone, he would have been alive to-day.

Another case. Mrs McQ. Aet 53. came under my care in June

1904 suffering from lung trouble, cough, shortness of breath and blood stained sputum. The sputum was positive when examined.

Family history:- Mother died of Phthisis aet 39. Father killed. The rest of the family history fairly good.

Personal history:- Patient has always had a cough more or less all her life. She was put on the Inhalation of Formalin and got relief from its use, but she never at anytime would persevere with this mode of treatment as desired. After a considerable time she gave it up completely, and consequently still continued to be troubled with the cough and shortness of breath. At present she has no night sweats, and has ceased to spit blood. A few months ago she was in the Infirmary suffering from what the Doctor called Chronic Bronchitis. She does not give herself a proper chance to recover.

Another case. R. M. Aet 57. Came under my care in April 1905. Sputum on examination showed that Tubercle Bacilli were present. Patient was in the Spirit Trade. He was tall and spare built. On Auscultation there were the usual signs of Phthisis present. Moist Rales and crepitant breath sounds. There was also dullness on percussion with increased vocal resonance. He was greatly troubled with his cough and the night sweats. There was also great loss of flesh.

Inhalation of Formalin was commenced at once by the Patient, and his cough became less troublesome, and the night sweats less frequent, in fact, he was beginning to respond fairly well to the inhalations. About this time one of the newly Appointed District Lady Visitors, kindly or otherwise, against his Wife's wishes, informed him that he had Consumption. The result was that from that day onwards he rapidly went down hill, having lost all heart when he heard about the nature of the malady from which he was suffering. His Wife had informed me that it would be very harmful to him if he was told what was

the matter, as he was a very nervous and highly strung individual. He passed away on the 9th October of that year.

J. R. Aet 17 years. Was a case of acute Phthisis. He came under my care on 3rd March 1906 and died on the 16th of that month. Inhalations were given but did nothing except relieve his cough and the night sweats. He rapidly became worse and died on the 16th March 1906 as stated, of galloping consumption.

I only mention this as a typical case of Acute Phthisis. The Tubercle Bacilli in the sputum were very few indeed.

Although some (a very few) of the cases treated with the Inhalation of Formalin improved or indeed recovered, yet the whole of the results were not altogether very encouraging, and one was often inclined to think that there was little or no use in continuing such treatment.

It was with pleasure therefore that I learned from my friend Dr Bain that Injections of Iodoform were reported to be very beneficial in cases of Phthisis.

Another case. A young married woman. Mrs R. Aet 21 years. This was a typical case of Phthisis. Cough, night sweats, loss of appetite, and great loss of flesh. The lungs showed the usual signs of Phthisis - tubular breathing, and moist rales. The sputum which was very abundant, showed on examination Tubercle Bacilli very numerous, practically all in small clumps. She absolutely refused to have intravenous injections of Iodoform and thus did not give herself any chance of recovery. She commenced Inhalations in June 1906 and except for relief to cough and night sweats, she steadily continued on a down hill course and died in September of the same year.

Another case. Mrs Lee. Aet 25 years. A young

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Another case. Mrs Lee. Aet 25 years. A young

shoe-maker's Wife. Came under my care in 1906 suffering from profuse night-sweats, irritable cough, and loss of flesh. Her Appetite had become very poor, and living in a close stuffy room did not tend to help her case any. Her sputum showed numerous Tubercle Bacilli on examination, mostly singly. After having put her on the Inhalation of Formalin, and finding that she did not make much headway, I commenced the intra venous injection of Iodoform. The injections were continued from October 1906 up until January 1907, the Inhalations being given at the same time. But in spite of all my care and attention, the disease still made great head way, and the Patient passed away in the middle of January 1907.

Another case. Miss R. Aet 19 years, was in such an advanced state of Phthisis when I first saw her on the 18th March 1907 that I could not hold out much chance of recovery, yet I thought it best to give her Injections of Iodoform, and also put her on the Inhalations of Formalin. It did not prevent the disease from advancing but at least gave her some relief. She was troubled with an irritable hacking cough, night sweats, and loss of appetite. On sounding her chest there was abundant evidence of tubercular mischief. Tubular breathing, with moist rales were heard on Auscultation, while there was dullness on percussion, and the sputum on examination showed fairly numerous Tubercle Bacilli. She had 12 injections of Iodoform altogether from the 18th March till the 9th April. Then as she became weaker she declined to have them and just continued with the Inhalation of Formalin and other palliative treatment until the end came. The disease pursued its course unchecked and she passed away in June 1907 having been under treatment from March of the same year. She had been treated by different Doctors for over a year before she came under my notice.

A Mr B Aet. 53 years came under my care in March 1907, and as his sputum showed signs of Tubercle Bacilli not at all numerous I at once commenced the Inhalations of Formalin and Injections of Iodoform.

This was a typical case of Chronic or Fibroid Phthisis. The left lung showed signs of Phthisis. He was complaining of cough, night sweats, and loss of flesh.

Family History. His mother is alive and well and aged about 80years. Father died at 65 years of age, cause of death Asthma with Pleurisy. Brother died at 16 years of age of Phthisis, and his wife at 26 years of age of the same complaint. A niece died at the age of 25 years. So that the family history was very bad indeed.

He improved wonderfully and his appetite increased. The night sweats ceased and the cough became less trouble-some and he appeared to be on the way towards recovery.

Unfortunately I missed the vein on Injecting him on one occasion, and he turned against that mode of treatment. Eventually he ceased to attend my surgery in October 1907. He had made such remarkable progress that I believe he would ultimately have fully recovered.

He is still alive, and just a few days ago I found that he had had a relapse and is **so far** reduced in physical condition that I fear neither Injections nor Inhalations will now do more than alleviate his sufferings. He had an attack of Pleurisy about last Christmas, and was under other Medical care then. As he is now in my hands again I find on examination that he has become greatly reduced in physical condition, he is troubled with cough, and the sputum is yellowish green. He complains of pain in his left side. On Auscultation the breath sounds are greatly diminished all over the left side. The vocal resonance and vocal fremitus are also diminished.

There appears to be great thickening of the Pleura. On percussion there is marked dullness as compared with the right side. At the right apex there is slight tubular breathing. The temperature at present is quite normal, and the night sweats which were very bad at Christmas have now ceased. He is still confined to bed and has gained a little strength. His appetite has improved somewhat. He is now on the inhalation of Formalin.

Mrs E. A young married woman with several children commenced treatment in May 1907. Her sputum showed Tubercle Bacilli on examination - very numerous indeed. She was greatly troubled with cough, and night sweats. There was also loss of flesh, due to the fever and loss of appetite.

She had both Injections of Iodoform and Inhalations of Formalin, and in a short time was able to get out of bed, and even to go outside in the fresh air. Her appetite increased, cough diminished, and night sweats ceased. She made wonderful progress and was much better by the month of August 1907. She left for Dublin about the beginning of September, and I am afraid she had nothing in the way of Formalin Inhalations or Iodoform Injections after her arrival there, because I was informed that after she got there the disease started afresh and she rapidly went downhill and soon passed away.

A most interesting case was a young man Larsen, who was suffering from Haemoptysis, cough and night sweats. On Auscultation the seat of the lesion could be detected at the apex of the left lung - moist rales and crepitant breath sounds. Dullness on percussion was also present. The haemorrhage was soon relieved and he was at once put upon the Inhalation of Formalin and Injection of Iodoform. He soon ceased to spit blood, the night sweats diminished, and the cough became less irritable. Before long he was able to leave bed and attend at my surgery.

The Injections were given every day until he left for Norway. This patient stated that he had had a previous attack of chest trouble at home in Norway, and had evidently been treated with pills containing Arsenic..

I was very anxious that he should have had more X Injections before he left for home, but when he found that he was able to go, he would not stay any longer.

I received the following letter from him about a year after he left for home

Mandal, Norway. 25th June 1908

Dr Stevenson. Sunderland.

Dear Sir/

When I left Sunderland a year ago in April last, I did promise to let you know how I would be getting on, and I hereby have the pleasure to express that I am keeping very well and have daily been improving in health since I left England, although I have had no chance to take any holidays.

I did commence work a week after my arrival at home and I have since been going on.

I even feel a good deal better now than last summer and have no trouble at all with the chest. In fact I have not been so well for the last six years, and I expect I shall be able to keep in going on. I don't know whether it was your medicine, which has been causing the progress or the fresh air over here. Might be both

I beg to remain

Dear Sir

Yours truly

A. Norman Larsen.

About 3 months ago I was informed that the Patient Larsen was getting married, so that he evidently continues in good health.

This case gave me great encouragement and hope for

better results. I found that the Inhalations in most, except very mild or incipient cases did very little good. On the other hand the Injections showed wonderful results, and gave the Patient a chance for his life.

It is essential that Phthigical Patients should rest in bed until all fever has left them, - that they should have fresh air, - windows open day and night, - and as much nourishing food as they can assimilate. I am afraid there are many poor Patients who only obtain the first two, - the rest in bed and the fresh air - the supply of good food being very limited indeed.

The treatment by Injection of Iodoform can be carried out in the Patients' own homes, so that those Patients who cannot or will not go to a Sanatorium can be treated at home.

- (1) C. S. Aet 23, female, unmarried, employed at home.
- Family History Father and Mother alive and well. There were 13 children, of whom 4 died before they were a year old of Tubercular Meningitis. Three daughters aged respectively 24, 20, and 18 all died in 15 months of Phthisis.
- Personal History. Patient has not been very strong for the last 5 years. She was, however, never sufficiently ill to consult a Doctor until 5 months before she sought Medical advice. When she came under treatment she suffered from shortness of breath, headaches, palpitation, and inability to perform her household duties. She also had an irritable cough, and the sputum was blood stained.
- A careful examination of the chest revealed impairment of the percussion note over the right apex. Auscultation showed the **breath** sounds over the same area to be somewhat tubular in character, and slightly diminished in volume, but free from adventitious sounds. The scanty blood stained sputum was

examined on three occasions before Tubercle Bacilli were found. The temperature taken every night for a week showed a distinct rise ranging from 99-2 to 100 "F".

The Patient was immediately put to bed and kept in her room for 4 months, only getting up for 15 minutes in the evening to have her bed made. At the end of that time her temperature had reached normal, and she was looking the picture of health; Indeed for some weeks before she was permitted to leave her room she began to get restless, and continually asked for permission to get out of bed. This was due to the well meant but injudicious advice of friends, who seeing her look so well, could not understand why she should remain in bed, and naturally advised her to get out into the open air. For the next two months she still continued to receive Injections at first twice weekly, and then once a week, those for the last month being given at the Surgery. This Patient having been taken in hand just when the disease had got hold of her lungs, but before they began to break down, was not much emaciated: still she gained weight rapidly during the last three months of treatment, and had put on flesh to the extent of 12 lbs by the time she was dismissed as a case of arrested Pulmonary Tuberculosis. When this girl came under treatment she had a sickly, unhealthy, look on her face, but after she had been under treatment for two months, this gradually gave place to a look of robust health, which surprised her friends, more especially those who knew of the sad fate of her sisters.

Examination of the chest at the end of the treatment showed slight flattening below the right clavicle. The percussion note was, however, the same at both apexes, but on auscultation slight prolongation of the expiratory apices murmur could be made out.

This Patient made a very good recovery, considering

her wretched family history, though I think not so rapid recovery as she would have done had she not inherited such a lack of resisting power to the ravages of the Tubercle Bacilli .

She received altogether 60 Injections, and was under treatment for six months. Since then she has enjoyed the best of health, and has always been able to perform her household duties. She has since been married, just a few months ago.

(2) Mrs M. Aet 25 years. Married 3 years. No children.

Family History. Mother died of Phthisis at the age of 30.

Father alive and well. Two brothers aged respectively 19 and 21 are both in good health.

Personal History. Patient always enjoyed good health until the age of 20, when she had a well marked attack of Syphilis. For this she was treated with full doses of Mercury for 6 months and has never shown any signs of recurrence of the disease.

History of present illness. For 4 months before treatment Patient had indifferent health. She had lost her appetite considerably, had little energy for her work, and began to be troubled with an irritable cough, accompanied by some expectoration, especially in the morning. This cough was particularly troublesome for 6 weeks, and was the cause of her husband insisting that she should seek Medical advise. She had lost flesh to some extent, though this was not a marked feature of her illness. She had never spit any blood .

Examination of her chest showed signs of early Phthisis at the left apex: dullness and resistance on percussion tubular breathing, diminished **breath** sounds, and a few crepitant rales: a few Tubercle Bacilli were found in the sputum after repeated examination. The evening temperature for a week ranged from 99 to 99-6 "F".

The nature of her illness having been explained to

her husband, and the necessity for absolute rest, arrangements were at once made for the Patient to keep rested for some months if necessary. This woman responded to the treatment from the very first, her cough being the first symptom to show marked improvement: her appetite also soon returned, and 4 weeks after the treatment was commenced the patient said that she was eating better than she had done for years. This woman was kept in bed for three months, at the end of which time all her symptoms had disappeared and she was clamouring to be allowed to get up. This Patient was never very stout even when in health, and had not lost a great deal of flesh, but during her rest in bed she put on flesh to the extent of 10 lbs, and her friends who had not seen her for some time, were quite astonished to see how well she was looking. She was kept under treatment for another 6 weeks, when her chest was examined and the physical signs of Phthisis were found to be practically gone. The **breath** sounds were quite free from rales and only very slightly diminished in volume, while the percussion note was quite normal. This woman was 4 months under treatment, and she had altogether 50 Injections. Tubercle Bacilli were absent from the sputum at the cessation of the treatment.

(3) Mrs F. Aet 32. Housewife. Mother of 6 children.

Family History Unimportant.

Personal History. Patient was never a very robust woman, but she never had any serious illness except an attack of Influenza at the age of 22, which confined her to bed for a fortnight.

History of present illness. For three months before treatment Patient was troubled with an irritable cough, usually most troublesome at night, which got progressively worse until she could get hardly any rest. When first seen she was confined to bed, and looking very ill indeed. Her symptoms were those

of a typical case of consumption, hacking cough, profuse purulent expectoration, night sweats, loss of flesh, and loathing for food.

Her temperature at four in the afternoon was 101° "F". The sputum was practically yellow pus, and continued to be brought up in great quantities for at least a fortnight after treatment was begun.

Examination of the chest showed well marked Phthisis of the upper lobe of the right lung, both in front and behind. Below the Clavicle moist rales were easily heard, but no signs of cavitation. This woman made a very good recovery under very trying circumstances. Her husband at the time she took ill was only employed very irregularly as a dock labourer, and sometimes for a week at a time had nothing to do, so that had it not been for the kindness of neighbours and visitors, her dietry would have been much more limited than it was. She began to improve almost from the first, and at the end of a month was looking a different woman altogether, having lost the apathetic dying look which she wore when she was first taken in hand. All her symptoms rapidly retrogressed, and after 10 weeks the only thing that caused her any annoyance was her cough, which was sometimes a little troublesome in the morning. Her sputum which formerly was almost pure pus was now very scanty, white in colour, and when examined microscopically only showed a very few Tubercle Bacilli. This Patient was under treatment 6 months, during the latter half of which time she was compelled to do what she could of her household duties. There is not the least doubt but that this woman would have made an even better recovery than she did had she been able to lie in bed until her temperature reached normal, exercise at an early stage of recovery having a distinctly retarding effect on the fall of the evening

temperature. During the six months she was under treatment she gained 16 lbs in weight, certainly not a very great increase in body-weight, but quite satisfactory considering the scanty nature of her diet during most of that time.

She had 64 injections, only one weekly being given during the last month. The physical signs in the affected lung underwent a great change for the better during the course of treatment, and by the end of six months the lung was quite healed. There was however, distinct flattening below the clavicle, and the breath sounds had not quite lost their tubularity. Tubercle Bacilli though looked for on three occasions were absent from the sputum.

This woman since her recovery has had another baby and still continues to enjoy good health.

(4) Mr L. Aet 19. Shop Assistant.

Family History. very bad, a sister aged 10, and two brothers aged respectively 22 and 24 years all died in 8 months of Phthisis.

History of present illness. In June Patient contracted a bad cold, and one night after a severe paroxysm of coughing, he vomited a large quantity of blood. This unfortunate occurrence necessitated his confinement to bed for a month, and it was 2 months after the haemorrhage ere he was able to resume his work. He however never quite regained his strength, and was troubled afterwards with an irritable cough during the night, and especially on rising in the morning. Six months after the haemoptysis he came complaining of cough, loss of flesh, and progressive loss of strength, his work being then quite a burden to him. Examination of his chest showed quite clearly the seat of the haemorrhage. The right apex was dull to percussion, while on auscultation the signs of a cavity were

very distinct. Tubercle Bacilli were found in the sputum. This youth was made to give up his work and to confine himself entirely to bed, no definite time being assigned as to how long he might be required to keep to his room.

This Patient was under treatment for 5 months, for 3 of which he was confined to bed, only being allowed up for 10 minutes in the evening in order to have his bed made. At first he did not progress very fast, his cough persisting, the temperature remaining considerably above normal, and the gain in weight being insignificant. However he suddenly took a turn for the better at the end of his second month of treatment, and from that time onwards he caused no further anxiety.

He was under treatment for 5 months, during which time he received 58 injections. Even before he took ill he never carried any extra flesh, so that I did not anticipate he would gain a great deal in weight, still he did better than I expected, and showed, when weighed at the end of this five months treatment, a gain in flesh of 17 lbs. His chest condition was greatly improved, the percussion note being almost as clear over the right apex as on the opposite side, the tubular character of the breath sounds being much less clearly marked, while the cavity had contracted considerably in size, though cavernous breathing could still be made out. His very scanty sputum on being tested for Tubercle Bacilli gave a negative result.

Since his recovery he has been constantly employed at his former occupation, and says he is as able for his work as ever he was.

His mother asserts that he looks better and healthier than at any previous time of his life, and his friends are all agreed that during the time he was away from work he has altered in appearance greatly for the better.

(5) J.A. Pit boy. Aet 18.

Family History. Both parents are alive and well. He has one sister who has suffered from Bronchitis for the last three winters. The other members of the family enjoy good health.

Personal History This lad according to his Mother's statement has suffered more or less every winter from Bronchitis since childhood, but otherwise has had no serious illness. For three months previous to being put under treatment he had been suffering from Bronchitis, but what alarmed his mother and made her seek Medical advice for her son was the fact that he was absolutely exhausted when he came home from work and usually threw himself down on a couch without asking for anything to eat. Examination of his chest revealed well marked Bronchitis, but at the right apex in addition to the Bronchitic sounds, there were cogwheel breathing and prolongation of expiration. The percussion note over this area was also less clear than over the opposite side. Suspecting that he had Phthisis as well as Bronchitis, the sputum was examined and there was no difficulty in finding Tubercle Bacilli. His sputum was also suspicious, being mucopurulent or greenish-yellow, quite unlike the frothy white expectoration characteristic of chronic Bronchitis. In spite of the fact that he had Bronchitis all over the chest, he was at once confined to bed, and made to sleep with the bedroom window wide open. His chest for a fortnight was rubbed night and morning with a mixture of turpentine and olive oil, and to ease the cough he was advised to take occasionally two teaspoonfuls of Glycerine flavoured with the juice of a lemon. Under this treatment his cough rapidly began to mend, and the sputum to diminish in amount, its character changing from mucopurulent to white frothy material. The injections were also begun at once, 4 being given during the first week, and afterwards three times weekly for two months, and finally twice

and once weekly for another two months. This lad was a very obedient patient, and submitted to the enforced confinement to bed without any grumbling or peevish requests to be allowed up in the evenings. He was permitted to get up 2½ months after the commencement of the treatment, and six weeks later had to resume work at the pit, as his father was only very irregularly employed, and his maintenance at home was a drain on the strained resources of the family.

Though compelled to start to earn his living immediately after recovery, he has continued in good health, and has not been laid off through illness since he resumed his occupation. This lad gained 13 lbs in weight, and his lung condition cleared up very well, practically no difference being made out between the two sides of the chest.

This Patient was under treatment 4 months and 1 week, and received 60 injections.

(6) R.J. Aet 35. Unmarried. Brewer's Traveller.

Family History. Father died of Phthisis at the age of 45.

Mother suffers from chronic Rheumatism. One sister, aged 39 is blind, iritis being assigned as the cause of the loss of sight. Another sister died of Phthisis at the age of 27.

Personal History. Patient always enjoyed good health until the age of 30, when he had a spitting of blood, resulting from what he called an ulcer of the lung. By the advice of his Physician he stayed away from work for two months, the last three weeks of this time being spent in the Country. He had no further disturbance of health until the onset of the present illness. At that time he began to be troubled with an irritable cough, especially at night, accompanied by profuse yellow expectoration. He scorned the idea of consulting any Medical man, and it was

only when it became apparent even to himself that he was seriously ill that he consented to have his chest examined, exactly four months from the commencement of his trouble.

The upper lobe of the right lung, both in front and behind, was found to be the seat of a rapidly advancing Phthisis, the physical signs being quite sufficient to account for the hacking cough and profuse expectoration which were his most troublesome symptoms. He was at once put to bed and his bedroom window thrown widely open, but in spite of these advantages he showed absolutely no indications of any improvement for 6 weeks.

His cough quite prevented him from sleeping, and his expectoration was so profuse as to fill a small sugar bowl daily. The night sweats drenched his pillow, and his bed clothes had to be changed every morning, indeed so acute were his symptoms that it looked as if he had not very long to live: however his condition suddenly changed for the better, his cough, spit, and drenching night sweats practically ceasing in one week, leaving only his elevation of temperature to show that his lungs were still the seat of active Tubercular deposit. For 5 months this man was kept in bed until his temperature touched normal, and even then the slightest exertion served to send it up a fraction of a degree or even higher.

Though allowed out of bed for the greater part of the day and permitted to move about his room it was 7 months since the beginning of treatment ere he was given permission to take exercise in the open air.

From that time he made rapid progress, and in another 2 months he was so sufficiently recovered as to be able to do without further Medical treatment.

Examination of his chest at that time showed only too clearly the damage that it had sustained during the course of

his illness. Cavernous breathing was very distinct over the affected area of lung, but there were no moist rales, the breath sounds being perfectly dry all over the chest. His sputum when examined for Tubercle Bacilli gave a negative result.

This man was under treatment 9 months, and received altogether 88 injections. He gained 1 stone 2 lbs in weight during the course of treatment. He was under treatment 9 months in all, and went for a 6 months holiday to the country, but on his return he again took up his occupation of a Brewer's Traveller and has worked steadily at it since.

(7) H. S. Aet 19 Labourer

Family History. Both parents alive and well. One brother was discharged from the Army as he was suffering from Consumption.

Personal History. Patient always enjoyed good health until the age of 17, when he had an attack of Haemoptysis. He had fairly good health from this time until his present illness set in, which took the form of an acute attack of pneumonia involving the left base. He got his crisis on the 7th day and seemed to be going on all right until the return of cough and spit 4 weeks later. When the affected base was again examined it was now found to be the seat of Tubercular deposit, and moist rales were present over what had formerly been the seat of the Pneumonia.

The evening temperature taken for three days showed a rise of 1 degree, and examination of the sputum showed the presence of a few Tubercle Bacilli. The Patient was ordered to bed and the bedroom window opened wide. Injections were begun at once, it being explained to the Patient that on these and these alone was he to base his hopes of recovery. This young man was 4 months under treatment, 2½ months in bed, the rest of the time being spent in his room, or taking slow walks in the country. Even

at the end of a month his lung showed signs of improvement, and by the end of his 4th month of treatment his breath sounds were quite dry. He gained 10 lbs in weight, and would perhaps have put on more flesh had his dietary been more abundant. His father was out of work for a considerable part of the lad's illness, and the Patient had, to a great extent, to live on the charity of friends, and a small allowance from the Board of Guardians.

His sputum was free from Tubercle Bacilli at the cessation of treatment. This youth since his illness has been able to follow his occupation as a Labourer. He received 48 injections.

(8) A. S. Aet 18 Apprentice ~~R~~/Riveter

Family History is unimportant.

Personal History. Except the usual diseases of childhood this Patient had good health until he was 17½ years old, when his mother noticed that his strength was beginning to fail. His appetite was also very poor, and he began to suffer from attacks of indigestion, and always felt tired in the mornings. Latterly a hacking cough, loss of flesh, and occasional night sweats alarmed his mother and caused her to seek advice. Examination of his chest showed Phthisis of the right apex. Impaired percussion, diminution of the respiratory murmur, tubular breathing and moist rales just beneath the clavicle were easily made out. The evening temperature taken for four days varied from 99 to 99-6 "F". Tubercle Bacilli were found in the sputum.

This lad was immediately put to bed, and warned of the necessity of lying there until his temperature had been normal for some time. He was under treatment for 4 months, and made good progress from the first.

When he ceased receiving the injections he had to start

work almost at once, his father having been irregularly employed since he took ill. At the end of treatment, the physical signs in his right apex were almost gone. There was still a little diminution of the respiratory murmur and prolongation of expiration, but the moist sounds were completely gone.

Tubercle Bacilli were absent from the sputum. His gain in weight was 12 lbs, as much as could be expected in the circumstances, seeing that the family finances were somewhat straightened during most of the lad's illness. This Patient is still at work and has the best of health. He received 40 injections.

(9) G. H. Aet 19. Pupil Teacher.

Family History. Father and mother alive, but the latter not a strong woman. There were 7 children, of whom 3 died in one week of Scarlet Fever.

Personal History. is unimportant.

History of present illness. This commenced three months before he sought advice. His mother noticed that his appetite was failing, that he was losing flesh, and also that he got breathless on the slightest exertion. He was brought for advice suffering from an attack of pain at the base of the right lung, which auscultation showed to be due to dry pleurisy, friction sounds being audible all over the painful area. The breath sounds all over the posterior aspect of the right lung were weaker than over the left, and in front over the infra-clavicular region the breath sounds were diminished in volume and jerky in character.

On the nature of his complaint being explained to him, and the character of the treatment that would require to be carried out, he readily agreed to confine himself to bed until he received permission to get up.

He was confined to bed for 3 months, at the end of

which time his temperature had fallen to normal. For 6 weeks longer, however, he continued to receive injections, though at longer intervals than earlier in the course of treatment. After ceasing to receive the injections he went down to Bournemouth for 2 months, where he greatly benefitted from his sojourn in that mild climate.

On his return home his chest was carefully examined and with the exception of a diminution of the percussion note and also some lack of fullness of the respiratory murmur over the right base there was nothing abnormal to be made out in his chest.

Though a few Tubercle Bacilli were found in his sputum when he came under treatment, they had quite disappeared when it was examined when he went to the South of England. He gained 14 lbs during the 4½ months he was under treatment, and 6 lbs during his sojourn at Bournemouth, making 20 lbs altogether. He received 49 injections.

(10) J. W. Aet 45. Foreman at the Docks. Married.

Family History. Unimportant.

Personal History. For the last 3 years this man has not been very strong, his principal complaint being pain over the region of the heart and shortness of breath on the least extra exertion.

History of present illness. This was what he was complaining of when he first came for advice, and whilst being treated for this his lung trouble suddenly developed with great rapidity.

He began to suffer from an irritable cough, especially at night, accompanied by profuse yellow expectoration, night sweats, and complete loss of appetite. On examination of his chest, the right apex was found to be breaking down rapidly, coarse crepitant rales being heard both above and below the clavicle.

As time went on, and the products of the disintegration were coughed up signs of cavitation became very apparent.

This Patient at first did not respond much to the treatment, in fact it was only after unmistakable signs of the damage which the lung had sustained, had made themselves audible to the stethoscope that he began to improve at all.

When however he began to put on flesh, he did so rapidly, regaining in a short space of time that look of health which had formerly been so patent on his face. But though he put on flesh, regained his appetite, and seemed to be progressing very satisfactorily, examination of the chest indicated that the extensive lesion at the apex of the lung was only healing slowly. Coarse moist sounds were long audible over the affected area and it was only towards the end of the 7th month of treatment that the cavities began to dry up. Even when he left off coming to the Surgery for his injections, a few moist crepitations could still be heard. His temperature had however been normal for 2 months previously, so that there was no hesitation in allowing him to give up treatment, knowing that it was only a question of time ere all moist sounds would disappear from the chest.

This man was under treatment for 8 months, and received altogether 86 injections. He gained 18 lbs in weight, and enjoys now as good health as ever he had previously. His shortness of breath still troubles him when he has to hurry, but with this exception, he has no symptoms referable to his chest.

Tubercle Bacilli were found without any difficulty in his sputum when he took ill, but none were to be detected at the cessation of treatment.

(11) J. H. Aet 25 Labourer. Unmarried.

Family History. Father and mother alive and well. A brother died of Phthisis at the age of 18 and a sister at the age of 22.

Personal History. Had an attack of Pneumonia at the age of 19, from which he made a good recovery, also a rather ^{severe} attack of Influenza 2 years later, but with these exceptions he has always enjoyed good health.

History of present illness. Patient dates his illhealth from a thorough wetting he received by having to work a whole forenoon in a drain while it was raining heavily. This caused a severe cold, which he has never been able to shake off. He, however, persevered at his work until increasing loss of strength finally compelled him to give up his employment. When he came for consultation his symptoms were such as to make one suspect the onset of Phthisis. His cough was very troublesome at night, and accompanied by greenish yellow expectoration. He had occasional night sweats, and his appetite was bad. Flatulent dyspepsia also caused him some uneasiness. He had lost flesh, but could not say to what extent. On stripping him the flattening beneath the right clavicle was very apparent. Over this area the percussion note was distinctly impaired, and auscultation revealed diminution of the respiratory murmur, tubular and jerky breathing and a few moist sounds at the end of inspiration. His evening temperature taken for three nights in succession ranged from 99-6 to 100 "F". Although the prospects of this man being well fed during his illness were not very encouraging, seeing his father was just a Labourer like himself and not always constantly employed, he chose to remain under his own Medical adviser, rather than trust the Parish Doctor, who could have ordered milk and other necessaries as long as he thought necessary. As a routine part of his treatment his bedroom window was kept open, and he himself was compelled to lie in bed until permission was given to get up.

The details of this man's recovery do not present any outstanding features which call for special remark, except perhaps

that hyperalimentation never formed part of his cure.

He got a pint of milk daily when his parents could afford it, but as a general rule his breakfast and tea consisted of bread and butter, accompanied by a piece of fish or fried liver when the family finances permitted such additions to his fare.

At the end of 3 months his temperature had dropped to normal, and he was then cautiously allowed out of bed. A month later he was able to come to the Surgery for treatment, and finally 5 months after taking him in hand, he was permitted to resume light work, as he said he could no longer be a burden to his parents. An examination of his chest still showed slight flattening at the right apex, but the condition of the lung was vastly improved. Percussion was almost normal, and the breath sounds were almost as full as over the opposite side, while adventitious sounds were quite absent. Tubercle Bacilli were absent from the sputum at the cessation of treatment. He gained 15 lbs in weight, a very creditable increase in body weight considering the meagre nature of his diet during his illness. This man was 5 months under treatment, and received 55 injections.

(12) Mrs J. Aet 35. Wife of a Shipyard Labourer. Mother of 4 children.

Family History. Father and Mother alive and well. One sister died of Phthisis at the age of 17. The other members of the family all enjoy good health.

Personal History is unimportant.

History of present illness. This began in August 1906 when she caught a severe cold, which she was never able to get rid of. A persistent hacking cough, particularly troublesome at night was her chief complaint, though she states that for the last

3 weeks she has had profuse night sweats. Her appetite is poor and she often vomits her food. She has never brought up any blood. The woman looks thin and wasted having evidently lost flesh to a very considerable extent. Inspection of the woman's chest showed how rapidly she had been going down-hill, the ribs standing out prominently and showing the intercostal spaces very distinctly. Percussion indicated marked impairment of the left lung as low as the 3rd interspace. The breathing over this area was diminished in volume, markedly tubular and jerky in character, while just below the clavicle moist crepitations were easily heard. In the suprascapular region the breath sounds were similar in character, and also over the upper part of the scapula.

This woman received an injection before she left the Surgery, and went straight home to bed, to which she was confined for 4 months. She began to improve almost at once, her hacking cough and the night sweats being markedly improved at the end of the first week. Her temperature which was "103 F" the first night it was taken, also rapidly ceased to show such high registers though it was a few months before it finally fell to normal.

This Patient made a very good recovery under circumstances which were by no means conducive to a rapid attainment of good health. Her husband had for months been very badly employed, and even when she had to take to bed he was only employed half time for three weeks. Under such circumstances it can be understood that the Patient's dietary was by no means abundant, and that it was seldom that she ever had more than one pint of milk daily, though she often had to content herself with less. The bedroom in which she was compelled to live faced the North, so that the sun practically never lightened the apartment, but the wide open window kept the room well ventilated. In spite of these drawbacks the Patient as already indicated did very well, and very soon began to put on flesh. Her friends at

the end of six weeks being all surprised to see how well she was looking. From this time onwards her progress was uneventful and does not require further comment. At the end of 4 months she was allowed out of bed half an hour, the period being gradually lengthened nightly, so as to prevent any subsequent rise of evening temperature. She however continued to receive injections until the end of the sixth month when she was dismissed thoroughly well. The very small quantity of sputum which could be obtained at that time was free from Tubercle Bacilli. The change in her chest after treatment was manifest. The percussion note was much improved. The breath sounds had greatly increased in volume, though still showing some prolongation of expiration, and the moist rales which were so easily heard at the beginning of treatment were conspicuous by their absence. This Patient put on flesh to the extent of 17 lbs during the 6 months she was under treatment, and had she been under more advantageous circumstances with regard to diet, there is no doubt she would have shown much greater gain in weight. It is over three years since this woman was under treatment.

(13) Mrs S. Aet 30. Wife of a Sea going Fireman. Mother of 3 children.

Family History. Mother died of Phthisis at the age of 35, Father is alive and well. She has one sister and two brothers all of whom enjoy good health.

Personal History. She had an attack of Pneumonia at the age of 18, from which she made a good recovery, but with this exception she never had a severe illness.

History of present illness. This began suddenly exactly one month after her last confinement. She just noticed that her milk left her, and that her appetite failed entirely.

A terrible cough then set in, which was so persistent that the neighbours who stayed beneath her complained that they could get no sleep. Drenching night sweats accompanied this cough, which were so profuse that she had to have her mattress changed 10 days after their onset. This woman had been suffering from these urgent symptoms for 3 weeks before advice was sought, and the apathetic, sickly dying look on her face did not make one very sanguine of being able to do her much good.

From the urgency of her symptoms one was prepared to find well marked involvement of one or both of her lungs, and this was quite confirmed when the chest was examined. The right lung was evidently affected throughout its whole extent. The percussion note was impaired, the respiratory murmur was diminished in volume, and tubular cog-wheel breathing was heard both back and front, but especially at the right apex, where the breath sounds were accompanied by moist rales.

The sputum was mucopurulent, abundant and teeming with Tubercle Bacilli. The evening temperature at the beginning of treatment ranged from 101-2 to 102 "F".

The Patient did not require to be urged to keep her bed, her weakness and prostration after a night of coughing and sweating making her scarcely able to raise her head from her pillow. The injections were begun at once, 4 being given during the first week, and then every second day until well on in the course of treatment. Under the continued influence of fresh air and Iodoform the night sweats quickly subsided, her cough got less troublesome, and in 10 days time her appetite began to return, getting greater daily until it quite reached her normal.

This Patient was under treatment 7 months, 4 of which she spent in bed, or in other words she was compelled to rest until her temperature ceased to show any evening rise. Her

sputum tested at this time still showed a few Tubercle Bacilli, so the injections were continued 3 months longer, at the end of which time the very scanty sputum was quite free from Bacilli.

At the end of treatment her chest condition was greatly improved. There was no impairment of the percussion note, and only very slight diminution of the respiratory murmur, but the jerky tubular breathing, so distinct when first treated, was gone except at the right apex, where it still persisted slightly. The moist rales had absolutely disappeared.

This woman gained 19 lbs in weight, and received 76 inj. injections. It is 1 year and 8 months past the end of April of the present year since this woman was under treatment.

(14) J. W. Aet 19. Bricklayer's Apprentice.

Family History. Father has suffered from Bronchitis every winter for a number of years back, his mother enjoys fair health. A sister died of consumption at the age of 17, and a brother died of what his Medical Attendant called Acute Phthisis at the age of 22.

Personal History. is unimportant.

The history of his present trouble, dates from a severe wetting he got one morning just after starting work. Though he put on dry clothes on coming home at mid-day, he caught a severe cold which he was unable to throw off, and which continued until he came to seek advice, 4 months later.

His breathing was rapid and shallow, and his cheeks had the hectic flush which is said to be so characteristic of Phthisis. His temperature was 100-8 "F".

His principal complaint was his cough, which completely destroyed his rest at night, but on being questioned he admitted that his appetite was very poor, that he had lost flesh, and that he was now scarcely able to follow his employment. He was

also troubled with night sweats.

Examination of the chest showed undoubted Phthisis of the right apex, the flattening beneath the Clavicle being very distinct.

This lad was at once put under the fresh air treatment in his own home, and the injections were begun at the same time. He received 4 during the first week to saturate his lungs with the drug. The night sweats first disappeared, and the cough also became much less troublesome, though he required to take every night for a week, a little Glycerine and Lemon to relieve it. As he began to improve his appetite gradually returned, and by the time he was dismissed his mother stated he could eat almost double his former quantity of food. His chest condition cleared up very well, only a little prolongation of expiration remaining to indicate that the apex had been the seat of tubercular deposit.

This Patient was under treatment 5 months. During that time he put on flesh to the extent of 16 lbs, and received 59 injections. His sputum which contained Tubercle Bacilli at the beginning of treatment was free from them when he was dismissed as able to do without further Medical treatment. It is 16 months since this young man was under treatment, and 14 since he resumed his occupation.

The above cases numbered 1 to 14 show what can be done in the way of treatment by Intravenous Injection of Iodoform carried out in the Patients own homes.

In the cases described, intravenous Injections of Iodoform, alone, is to be credited with the cure of these

patients. Although their bedroom windows were kept open, and the food which they received was fair but not extravagant in quantity, that alone would not have accounted for the results stated. They very rarely required any other medicine to relieve their coughs; a few inhalations of Formalin usually gave great relief when the cough was distressing. The average amount of Iodoform was usually about $1/2$ to $2/3$ a grain every two days, and afterwards every three days. But at first it is better to begin by only giving $1/4$ grain, i.e. 5 minims of the solution of Iodoform, so as to find out how the Patient is going to respond to the drug. The injections sometimes cause the Patients to cough badly when the treatment is first started, and some cannot stand very large doses at anytime. The Patient may complain of pains in various parts of the body after an injection, especially headache, which may mislead one at first. If the cough is very bad after an injection, the prognosis is not usually so favourable, and these cases usually turn out failures.

The solution I used is after Dr Dewar's formula thus

R/	Liquid Paraffin	40 per cent
	Anaesthetic ether	ad $3\overline{77}$ 97

In every 20 minims dissolve 1 grain Iodoform
therefore 10 minims contain $1/2$ grain of
Iodoform.

Final
The treatment by Intravenous injection of Iodoform may be said to be on its trial in the treatment of Phthisis Pulmonalis, and judging by the results it seems as if it is holding the field at present as one of the best drugs which can be used to combat such a terrible malady.

Every case does not recover under this treatment, yet the results are extremely encouraging.

How the Iodoform acts in Phthisis I cannot say, but

it seems as if Dr Dewar is correct when he says:-

"There is the possibility that the CHI_3 undergoes decomposition, resulting in the production of bodies in themselves more powerfully destructive to germs. While CHI_3 in power is very stable and unaffected by light, when in etherial solution or chloroform it is easily oxidised by the oxygen in the air when the solution is exposed to sunlight, the X-ray radiation, or radium. The first change which we should naturally anticipate on oxidation would be that the CHI_3 molecule has two atoms of its iodine substituted by one of O producing iodo-formicaldehyde, a body so far not isolated chemically, probably unstable, and inferentially a substance that would be a more powerful germicide than CH_2O (formic aldehyde)"

"If this iodo-formicaldehyde now parts with its atom of I and takes up H, we have nascent CH_2O made in situ, and more active than CH_2O as commonly used. Here, then, we would have a germicide of enormous power with all the increased energy of nascent formation".

Length of time under treatment!

This is a question to which it is impossible to give any very definite answer, but it necessarily follows that the longer a Patient has been ill the longer will he or she require treatment.

Dr Dewar records a case where a Patient received 350 injections. The case No "4" though he had been ill for 6 months, and was running a considerable temperature when first seen, yet made a very good recovery, and only received 58 injections.

Cases in which the lung is rapidly breaking down seem to require much longer treatment than those patients who come

before the disintegration process has got a firm hold.

Cases 6 and 10 were of this variety, and showed no signs of improvement until cavity formation was very manifest to the stethoscope over the affected area of lung.

Case 6 was 9 months under treatment, while case 10 was 8 months, and they received respectively 88 and 86 injections.

Cases 7 and 8 were each only 4 months under treatment, the shortest period in which a patient was dismissed as thoroughly well, all the other patients being under treatment for periods ranging from 4½ months to 11 months.

Number of Injections

At the beginning of treatment some of the patients have asked how many injections they will require to receive? and the answer to this question has always been that the number of injections must depend upon the progress they made towards recovery, and could not be definitely stated beforehand. However 60 injections is about the number that an average case of Phthisis will require and more especially if the lungs have not begun to break down

The gain of weight.

The gain of weight of the patients is much less than would have been shown by a similar number of patients treated in a Sanatorium. None of the patients ever consumed 1 quart of milk daily during the whole time they were under treatment, and many of them had to content themselves with 1 pint daily, and even less when the family resources were straightened. The same may be said with regard to Butcher meat, on which the Sanatorium Physicians lay much stress as a necessary part of the dietary of a Phthisical patient. Several of the patients got full meals of meat when the head of the house was working full time, **but** when he was not, they had to accept the dietary

on which the other members of the family lived, namely tea and bread and butter. However in spite of this lack of a continual and full supply of animal food they did well, and put on weight, thus proving that if a patient with a good appetite can only get sufficient plain food like bread and butter, he or she will ultimately do well, provided they get a help in their struggle against the ravages of Tubercle Bacillus from the intravenous injection of Iodoform

Family History.

The family histories of the patients are classified as follows (1) very bad, when two or more relatives have died of Phthisis (2) bad, when one member of the family has died of Phthisis (3) fair, where no phthisical taint is known, but the relatives are not strong, and (4) good, where no flaw occurs in the history of the relations.

Cases 1, 4, and 14 are in the first class, and notwithstanding their miserable family histories, they all made good recoveries and are all now looking well and in the best of health. Their ultimate recoveries are certainly due to the intravenous injection of Iodoform, assisted by such fresh air as they could get in their own homes in a town devoted to industrial enterprises. None of these patients were in a social position to afford the expense of a prolonged residence in a Sanatorium, which most Physicians would have regarded as absolutely necessary in their cases, seeing they inherited such a lack of resisting power to the ravages of Pulmonary Tuberculosis, yet as the records of these cases show, with the help of the injection of Iodoform, they successfully weathered the storm, and are to-day alive and well, surely a convincing proof of the power of Iodoform to ultimately destroy the Tubercle Bacillus in the lungs.

In class 2 are included 2. 6. 7. 11. 12. 13 and 19.

These cases do not call for any special comment, beyond the fact that one relation had died of Phthisis, and that, therefore the resisting power of the Patient would likely be below normal to the assaults of the Tubercle Bacillus. In these cases Iodoform again proved its ability to eradicate the bacillus from the lungs, and restore the Patient to sound health.

Cases 3 and 4 do not require any criticism

Length of illness before coming under treatment.

Case 4 was longest unwell before putting himself under medical supervision. His disease had advanced to the stage of cavitation before the injections were begun, and one would therefore have thought that his period of treatment would have been more prolonged than that of other patients whose disease was not so advanced. He made, however, such splendid progress during the latter part of his course of injections that he was able to be dismissed as perfectly well at the end of 5 months.

Cases 7 and 13 were only ill one month before they came for advice. Case 7 developed his Phthisis after Pneumonia, and case 13 after her confinement. Six months was thus the longest period during which a patient had been ailing, and one month the shortest period before medical aid was sought for the relief of the troublesome symptoms of their complaint.

Age of Patient.

None of the patients were very young, and none far advanced in years. Three were 19 years old, and the others ranged from this age to 45, so that there is not a case of senile Phthisis in the list of those recorded as successfully treated by the intravenous injection of Iodoform.

Length of time since patients were under treatment

The length of time which has elapsed since these patients were dismissed as cases of arrested Pulmonary Tuberculosis varies from 3 years to 12 months. All having been seen

recently, they were found to be in good health and looking well, in fact some of them now enjoy better health than they did before they passed through a course of treatment, and their relations testify to the soundness of their appetites. The fact that none of them have relapsed speaks well of the efficiency of the treatment which they have undergone, and more especially as they had all to start work very shortly after ceasing to receive injections. One of them, a woman, had to do her household duties when her course of treatment was only half completed. It may be urged against the results that the Patients had the benefit of fresh air during the time they were under treatment, and that they continued to sleep with their bedroom windows open after they ceased to attend at the Surgery. This objection however is one that is only likely to be put forward by those inexperienced in the use of Iodoform for Pulmonary Tuberculosis, for Dr Dewar has recorded a case who made a first class recovery under the intravenous injection of Iodoform, and that in spite of the fact that the Patient absolutely refused to have his bedroom window open.

Hence one is justified in asserting that Iodoform given intravenously, and Iodoform alone has saved the lives of the patients whose histories have now been recorded, and enabled them to continue their work in as good, if not better health than they had ever enjoyed previously.

Temperature.

In treating patients with the intravenous injections of Iodoform the temperature tends to fall nearly to normal at the end of 10 or 14 days, and during the rest of the course of treatment it continues to show every now and then little elevations both morning and evening, until it finally falls to normal. No case, however, should altogether be dispaired of, even though the temperature does not fall at the end of a fortnight. A

reference to case 4 will show that his temperature did not reach normal registers until the beginning of the 10th week of treatment, and yet that youth afterwards made one of the most satisfactory recoveries.

Sometimes after the temperature has been running in fairly normal registers for perhaps a week or ten days, it suddenly rises for 2 or 3 nights at least 1 degree above normal, then as suddenly subsides as it rose.

These little exacerbations of temperature are apt to frighten the Patient, and make him or her imagine that they indicate an extension of disease in the lungs. To quieten their fears a careful examination of the chest always showed that the chest condition was progressing most satisfactorily, instead of any retrograde change being found. Such exacerbations of temperature are evidently due to the destructive action of the Iodoform on the Tubercle Bacillus, either killing it directly, or rendering it so feeble that the scavenger cells of the blood are enabled to bring about its disintegration. In this way the endotoxins contained in the bacillus are suddenly set free into the circulation, and may produce those sudden rapidly passing rises of temperature which are so disturbing to the Patient, and also to the Physician, until he learns to appreciate them at their true value.

The Treatment.

The treatment is carried out as follows:-

A handkerchief is fixed as a tourniquet just above the elbow, so as to dilate the veins of the fore-arm and hand. The Patient then holds the ends of the handkerchief and rests the arm on the bed, or if up, upon a table. The arm is then steadied, and the needle of the syringe gently and carefully introduced into the swollen vein. When the needle has entered the vein there is a loss of resistance to its progress felt,

and generally a little blood flows backwards into the syringe. The Physician must be very careful, and make certain that the needle has gone straight, and entered the vein, before he injects the contents of the syringe. If he misses the vein and the solution is thrown into the surrounding tissue, the pain is something intense, and the Patient may never allow another injection to be given. One case under my care ceased the injections mainly on this account. When the needle has entered the vein, the handkerchief is loosened and the contents of the syringe are gently injected so as not to give the Patient a shock.

Slight Breathlessness is fairly common just after an injection has been given, and sometimes the Patient may complain of pain in the chest.

The best vein to use is the Median Basilic, but any of the superficial veins of either arm, or even those on the back of the hands may be used if they can be made to dilate sufficiently to enable the needle to be safely introduced.

It seems at first sight to be a very simple matter to give an intravenous injection of Iodoform, but when attempted at first, one has to take some pains and by practice gain the necessary dexterity required in the operation.

After the injection has been given the needle is gently withdrawn, and the handkerchief may be bound over the vein so as to prevent any bleeding taking place.

Literature.

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