

**Further report on the treatment of phthisis by iodoform infusion / by
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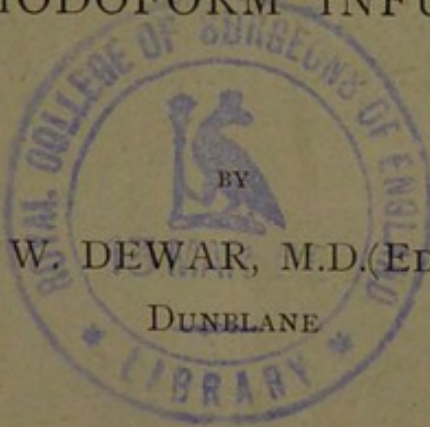
FURTHER REPORT

ON

THE TREATMENT OF PHTHISIS
BY IODOFORM INFUSION

BY
THOMAS W. DEWAR, M.D. (EDIN.), F.R.C.P.

DUNELANE



Reprinted from the "British Medical Journal"

14th January 1905

NOTE

A few Charts and Photographs of the Chests, with the affected areas marked, have been added. The Notes of the Cases are rather fuller than in the "Journal's" Report. These may assist in a juster estimate being formed of what has been accomplished.

FURTHER REPORT ON THE TREATMENT OF
PHTHISIS BY IODOFORM INFUSION, by
THOMAS W. DEWAR, M.D. Edin., F.R.C.P.,
Dunblane.

FURTHER REPORT.

IN the *British Medical Journal* for 21st November 1903, I published a short "Preliminary Report on the Treatment of Advanced Pulmonary Tuberculosis by the Intravenous Injection of Iodoform," devoting myself chiefly to a description of the method. This involves at a later date either an admission that the hopes then expressed have not been fulfilled or the submitting of more convincing evidence to support the thesis then maintained. To establish the *bona fides* of my statements as far as possible, I have had control examinations of the sputa made at the Royal College of Physicians' Laboratory. In making the request, I have intimated that the patients had been recipients of the iodoform infusion. At the beginning or end of some of the cases the name of a physician is placed in brackets. If at the beginning, it means that they saw the case then; if at the end, after treatment. I have asked their permission to introduce their names as evidence that the physical conditions were as stated, and I take this opportunity of thanking them for the courtesy. But they must not necessarily be understood as either approving the treatment or endorsing the moderate

claims I have put forward for it. Until the lapse of time has confirmed the stability of the results, and a larger number of cases have responded to the uniform treatment, it is premature to ask them to commit themselves further. This being a purely clinical paper only a brief *résumé* of lung symptoms is given. Other notes and observations are withheld.

DESCRIPTION OF TREATMENT.

Modification of Solution.

Since publishing my first paper I have modified the solution by adding 40 per cent. of liquid paraffin to it. Liquid paraffin has a sp. gr. 0.880, is perfectly soluble in ether, and the resulting solution is blander and less irritating to the veins. It further makes it possible to use much smaller vessels, in fact, the limit is only defined by the size of the needles and the operator's dexterity. (It may be desirable to state that liquid paraffin is not paraffin oil.) Before using it, I generally filter an ounce or so through cotton wool. It is colourless, odourless, tasteless, and in itself dissolves iodoform to a small extent. I have occasionally used the iodoform in liquid paraffin alone in the proportion of half a grain to 10 minims. This gives a preparation part solution, part suspension, which is perfectly workable through fine needles (*e.g.* Schimmel), and may prove of service in tubercular joints or hypodermically in tubercle of the skin and glands. It is painless on injection, and is prepared by crushing the iodoform in the liquid paraffin with a probe in a conical minim glass. Messrs. Burroughs, Wellcome & Co. have made for me half-grain tabloids of iodoform and a nonactinic all glass syringe. It is essential to use an "all glass" syringe. Ether destroys and shrivels the plunger of an ordinary piston, and very soon small pieces of it separate. These introduced to the fine lung capillaries would certainly give trouble. One of the tabloids is placed in the syringe, crushed with the piston, the ether drawn in and shaken till the powder is

dissolved. Thereafter, a few minims of liquid paraffin may be drawn up and the whole well shaken. To facilitate introduction, avoid haste, and prevent any escape, *the point of the needle is sealed by dipping it in Hazeline Cream*. When working with the Basilic veins the handkerchief tourniquet is placed immediately above the elbow, when with the forearm veins about its middle, and when with the veins on the knuckles or back of the hand at the wrist. The radial vein and the skin over it are thick and more difficult to puncture, and this is increased by its mobility. The fault of mobility for injection purposes applies to the ulnar also, but both are very serviceable. Prominence and tension of veins is assisted by giving the patient something to grip firmly in the hand. It is desirable when possible to inject in daylight, it is so much easier. The veins are generally fullest after 3 p.m. If these conditions are impracticable they may be temporarily distended by placing the forearm in hot water, but if this is done *the solution of iodoform in ether alone must not be used*. With the 40 per cent. of liquid paraffin added, however, it is perfectly safe. Enter the needle vertically and try to pin the top of the curve of the vessel with the point of the needle, and then pushing it gently on and bringing it into line with the calibre of the tube, insert it half-way. The sensation of going into a space is felt at once, and can even be seen by an onlooker. The patients usually know when it is right.

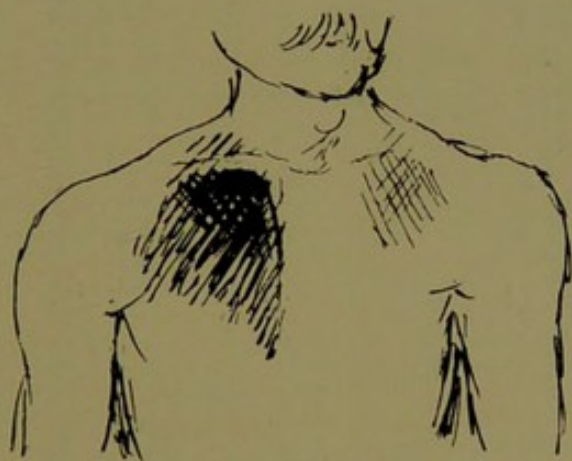
CASE No. 1.

[DR. ALEXANDER BRUCE and DR. J. CRAUFURD DUNLOP.]

M., age 40; no tubercular history in near relatives; enjoyed ordinary health until 37, when he had a severe attack of dorsal myelitis, which left him, after a long illness, with partial paralysis of the right leg, stiff ankle, exaggerated reflexes, and imperfect control of his bowels and bladder. When about 39 his health became indifferent, and three months before I saw him he had what he considered an attack of influenza. When I got him in the beginning of January the whole of the right upper lobe was involved and breaking down,

and there were the physical signs of a cavity at the apex. Percussion over the left apex was impaired and friction audible. The expectoration was purulent, copious, and full of tubercle bacilli (Royal College of Physicians' Laboratory); morning pulse, 100-106; evening pulse, 112-125. He had been a heavy cigarette smoker. It is desirable to note this and his myelitis in view of what happened after. His temperature chart is the first opposite p. 4. The patient, on account of his myelitis, declined to have his windows opened. He was up in six weeks. His injections during the first five months did not quite average one every second day. He left me in the end of September quite well, all signs of disease having disappeared from the left lung. The right upper lobe absolutely dry with a considerable amount of expansion restored. The signs of the cavity replaced by bronchial breathing. The pulse fell to 96. Any occasional expectoration was clear mucus, and only in the morning, and some months after he left me even this disappeared. He had no cough. It was most difficult to find tubercle bacilli before he left, and in the specimens sent me after, I failed to find any (Dr. Alexander Bruce and Dr. J. Craufurd Dunlop). He went to the south of France (Dr. Siordet, Dr. Rendall). After residing there about six months symptoms of his old spinal trouble returned, and he died, after a brief illness, of acute ascending myelitis with distressing heart symptoms. I never saw him after he left Dunblane, but Dr. S. M. Rendall wrote to me in reply to my request for a statement which I might publish:—"I had the opportunity of seeing him twice in consultation with Dr. Siordet soon after his arrival and just before he left Mentone. On both occasions I considered that the lung disease was in complete abeyance, there was not a crepitation or râle to be heard anywhere;" and Dr. Alexander Bruce, who saw him again in Edinburgh a few days before his death, also assures me that he died of myelitis, and his lungs had remained sound. The death of this patient was a great disappointment to me, for one of my few cases undergoing the test of time was lost. Bearing in mind the alleged paralysing effect which iodoform has on the heart, it is interesting to note the pulse in this case. Whether the rapidity observed at first was the result of nicotine or not it is difficult to say, but at anyrate it was out of all proportion to the temperature soon after. In March, with a normal temperature, it was 100 morning and 118 evening. By September it was 78 morning, 96 evening. It is evident, therefore, that, in medicinal doses, iodoform may be safely administered to a patient with a defective heart. From the evidence produced I think I may fairly claim that this patient did not die of phthisis.

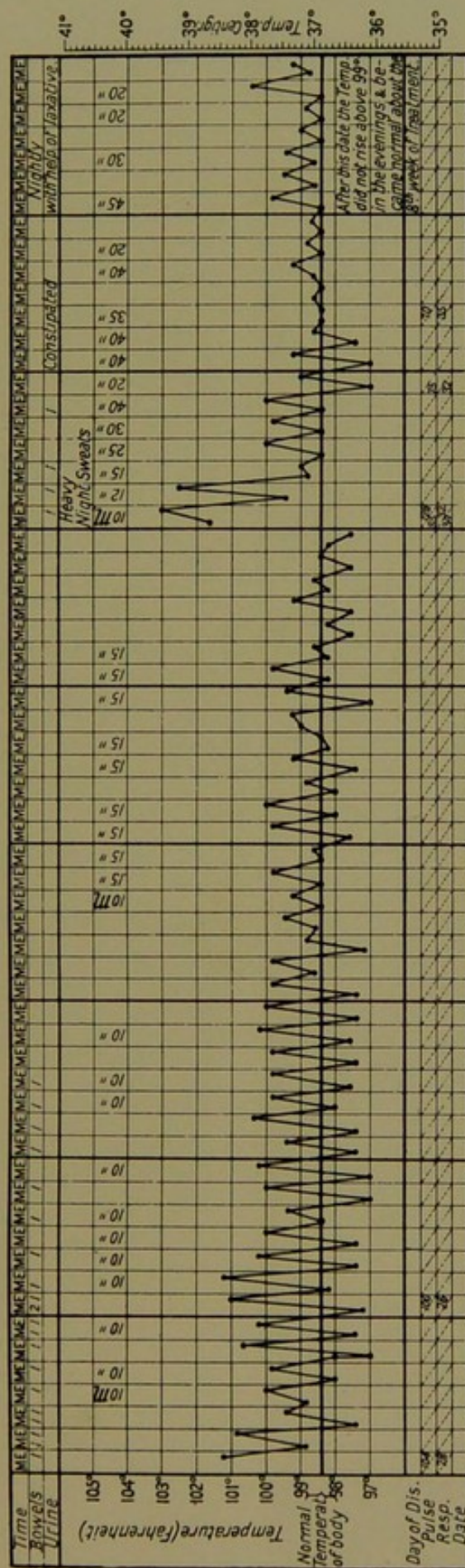
CASE No. I.



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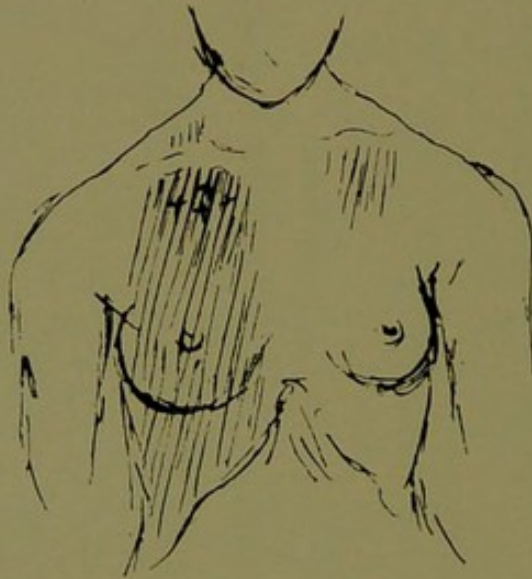
CHARTS OF CASES Nos. I. AND II.



CASE I.

CASE II.

CASE No. II.



To face page 5.]

CASE No. 2.

F., age 18; height, 5 ft. 5½ in.; weight, 9 stone; distaste for food; probable tubercular history; has two delicate brothers, one brother died in infancy. Father (M. D.) died from what appears to have been acute phthisis, aged 45; he expressed the opinion that this child would die of phthisis. Delicate as a child, she took all children's troubles, had frequent coughs in winter, never had a healthy appetite, and for years has been liable to severe attacks of abdominal pain, not relieved by laxatives. For several years she has lived in the country and slept with windows wide open summer and winter. In January 1902 she had influenza and catarrhal pneumonia on right side. This all cleared up by March. In December 1902 she had a septic throat. Temperature 101°, clean tongue, universal erythema, not followed by desquamation. She was well in a few days, but never looked the same after it. She came under treatment for the present illness on May 20, 1903. The temperature chart is No. 2 opposite p. 4. Before treatment it had touched 103° evening. Pulse, 95 morning, 128 evening. Respiration, 24 morning, 32 evening. Night sweats, constant cough, expectoration scanty, consisting of little hard lumps which could not be broken up with the platinum needles. These contained large numbers of tubercle bacilli (Royal College of Physicians' Laboratory), cocci, and lung débris. Percussion all over right lung, back and front was impaired. Anteriorly there was high pitched bronchial breathing below the clavicle, whispering pectiloquy and a few medium crepitations. Below the right mamma breath sounds were absent. Posteriorly a few crepitations were audible over the base on deep inspiration. The left apical note was also impaired, V. R. was + and breathing jerky. The patient's skin had an icteric tint with a hectic flush on the cheeks. In the appendicular, right and left hypochondriac and hypogastric regions there was pain which persisted for a long period. Two or three times she had also laryngeal pain and aphonia, lasting for a week or so at a time. Laryngoscopically nothing but congestion was observed. Laryngitis and aphonia occurring in a patient with pulmonary tubercle naturally aroused suspicions and the prognosis was grave. This patient was under treatment exactly eight months, receiving 151 injections. The laryngeal symptoms were treated by subcutaneous injections of iodoform in ether on either side the thyroid cartilage. *In giving these the solution must be introduced VERY SLOWLY, otherwise sloughing will result.* It is exquisitely painful for a minute. I also gave endo-laryngeal injections of the same

solution through the cricothyroid membrane. When injecting here the head must be thrown well back and fixed, and the patient told on no account to swallow or move the larynx during the operation, otherwise one could anticipate fracture of the very delicate needles (Schimmel's) employed. When she left, the left lung was normal in every respect, save that expiration was rather prolonged at the apex and there was hollowing under the clavicle. The right lung was much shrunk on inspection, percussion over the upper lobe impaired, and breathing bronchial; otherwise it seemed normal. Breath sounds had returned at the base anterior and no crepitations were heard at the base post. Three months after treatment was stopped I had the sputum examined; no tubercle bacilli (Royal College of Physicians' Laboratory). This patient has now been at work a year and has kept well. Weight, 9 st. 7 lb.—[Dr. E. S. JACKSON and Dr. B. G. MORISON.]

CASE No. 3.

[Sir THOMAS FRASER.]

F., age 20; weight, 9 stone; probable tubercular history; two brothers died in infancy, one had to winter at Cannes with pleurisy, marked tubercular history in ancestors. Present illness is referred back to a severe attack of scarlet fever seven years ago, since when there have been alternating periods of good and bad health. Attacks of anæmia, diarrhoea, unexplained prostrations, rises of temperature her physicians could not account for, etc. After one of these rigors she was taken to Dr. Goodhart, who detected lung mischief. In these feverish conditions her temperature had risen to 102°, but during the time she was under my care it never rose above 100°. (Once when she had a pleuritic attack, and again during laryngitis.) The sputum contained large numbers of tubercle bacilli, cocci, and elastic tissue (Royal College of Physicians' Laboratory). The skin was greenish-yellow, but the blood count was normal, and hæmoglobin 110. Temperature was never a conspicuous feature in the case, and the antipyretic effect of the injections was not so marked as in other patients. The pulse never rose above 100. Despite these favourable features the condition of the lungs was very serious. There was extensive pleurisy on the left side anteriorly over both lobes down to the costal margin. No action over the upper left lobe, which was consolidated with medium moist sounds. There was dulness over the upper portion of the lower lobe and whispering pectiloquy to the left of the mamma at the axillary border with large crepitations. The right apex was dull, and fine crepitations

CASE No. III.



[To face page 6.]

CASE No. III.



at the end of inspiration. Posteriorly left side dulness to the inferior angle of scapula, and crepitations all over this area below the angle of scapula, jerky breathing. Posterior right side over apex, impaired percussion, and a few fine crepitations. This patient has had not less than 250 injections. Except for a slight attack of laryngitis eight months ago, she has enjoyed excellent health for more than eighteen months. While very feeble at first and only able to crawl a few yards, she was allowed to go about all the time. She now walks miles, cycles, golfs, and sixteen months ago climbed to the top of Dumyat, nearly 1500 feet. The lungs are now quite dry and as well as they ever can be. A very considerable amount of expansion has been restored to the left lung, but the loss of volume is easily detected on inspection, and there is, of course, still slight impaired percussion and prolonged expectoration. Weight, 10 stone. Tubercle bacilli a very few (Royal College of Physicians' Laboratory).—[Sir THOMAS FRASER.]

CASE No. 4.

[L. J. M. DEAS, Captain I.M.S., and Dr. J. A. TAYLOR.]

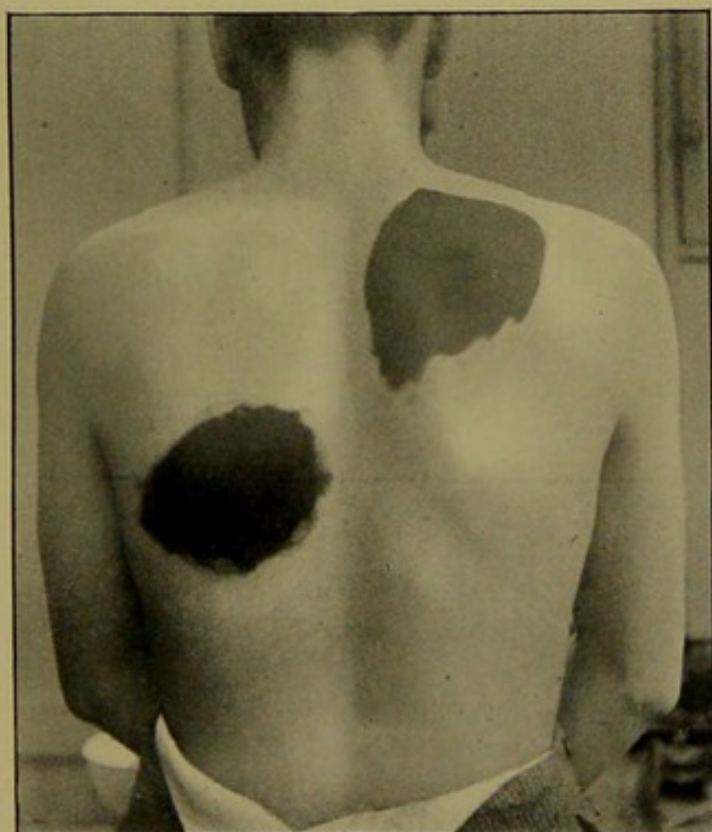
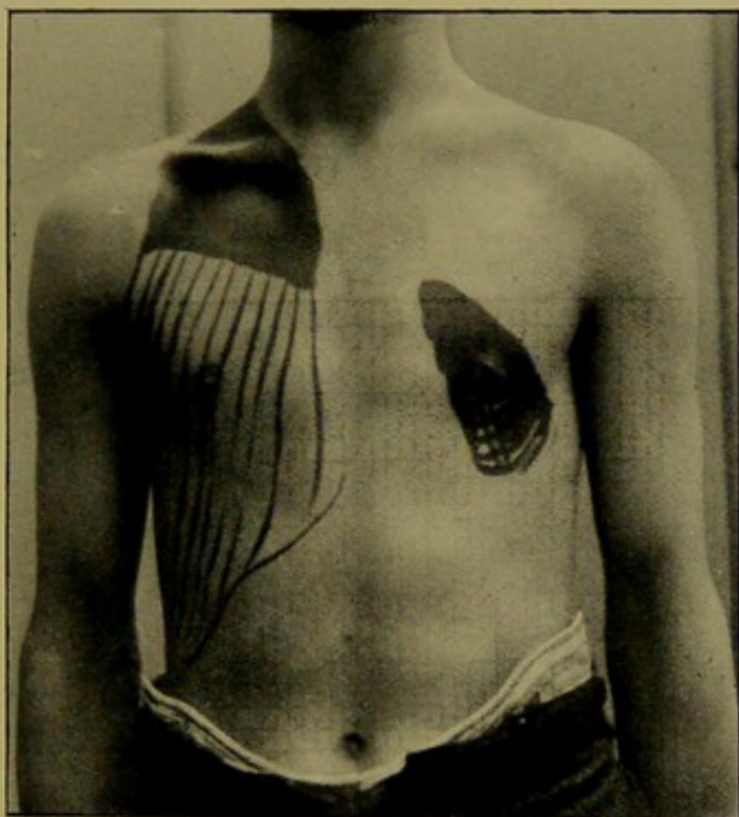
M., age 21; no appetite; marked tubercular history; mother died of acute phthisis, maternal aunt of tubercular ulceration of bowels, a maternal uncle has phthisis now, three brothers died of tubercular meningitis. Patient delicate as a child and difficult to rear; a splendid whistler as a boy, he lost the power at 17, not having breath for it.

Ten months ago had a cough which lasted fourteen weeks; six months ago had diarrhoea for one week; five and a half months ago began to have remittent fever and night sweats, which have continued ever since,—malaria was suspected, but no plasmodium was found in the blood, and quinine did not affect the temperature; one and a half months ago had pleurisy on right side; and one month ago was sent home from India with phthisis.

Patient is 5 ft. 11 in.; weight, 9 stone; thin, sallow, and cadaverous, slightly cyanosed in lips, finger-tips, and point of nose; has a short continuous cough interrupting his speech; swallows his expectoration; great debility; has rigors every afternoon. Temperature, morning, 98°; evening, 103°. Pulse, morning, 80-92; evening, 92-108. Respiration, morning, 24; evening, 28. Sputum, large numbers tubercle bacilli (Royal College of Physicians' Laboratory), few cocci, and little elastic tissue. Lungs, anterior right side, no action in the upper part, very little in lower, ribs falling in; whole of upper lobe solid; cavernous breathing and a few large crepitations

below clavicle, elsewhere high pitched bronchial; lower lobe, impaired percussion, occasional distant rhonchus; left side action much better, no impairment of percussion or alteration in V. R. or V. F., but a few small crepitations at the end of inspiration in the third and fourth interspaces extending in a downward and outward direction. Posterior right side, no action above, and physical signs of consolidation, but no accompts; left side, about the inferior angle of scapula, dullness on percussion. Altogether a very bad and wide bilateral infection. Three weeks later Dr. Philp kindly screened him for me, and subjoined is his certificate, which I have permission to publish: "With regard to Lieutenant —, whom I examined to-day, I am glad to have the opportunity of comparing the X-ray examination with the diagram of your physical diagnosis. The screen confirmed your diagnosis completely, but showed a more extended area of dullness on the left side. I hope you will bring him up again later on." Eleven weeks later he was again screened; the shadow was faint at the right apex, but elsewhere the lungs were both quite clear. The diaphragm was acting freely, whereas at the first screening it moved very little. Although this was the case, impairment on percussion was still easily elicited over the affected areas. This is not in conformity with the experience of some workers with the X-ray, who claim that it may disclose consolidations not ascertainable in the ordinary way. A few days after coming under observation his temperature rose to 105° , and an ischio-rectal abscess developed. This was evacuated, and the temperature fell to 102° , which presumably represented his lung temperature. His temperature was normal in three months, but he was up and moving about nearly all the time. At two and a half months he began gentle exercises with light Indian clubs, and a little golf soon after. He has kept well under the régime for several months. The lungs are now dry and the disease is quiescent. The left is normal on examination; the right apex alone showing traces by impaired percussion and bronchial breathing of the former grave disease. The action on the right side is now nearly as good as the left. The temperature chart is too long to reproduce, but has been seen in its entirety by Sir T. Fraser, Mr. Alexis Thomson, and Dr. Robertson, M.O.H., Leith. Tubercle bacilli are still present. Weight, 11 stone 4 lb. This is one of the most interesting of the series when we consider his bad family history, the bilateral infection, the severity of constitutional symptoms, and the complication of the ischio-rectal abscess. Throughout he has had the new solution, *i.e.* the CHI_3 in ether not saturated + 40 per cent. liquid paraffin, so it is apparently as

CASE No. IV.

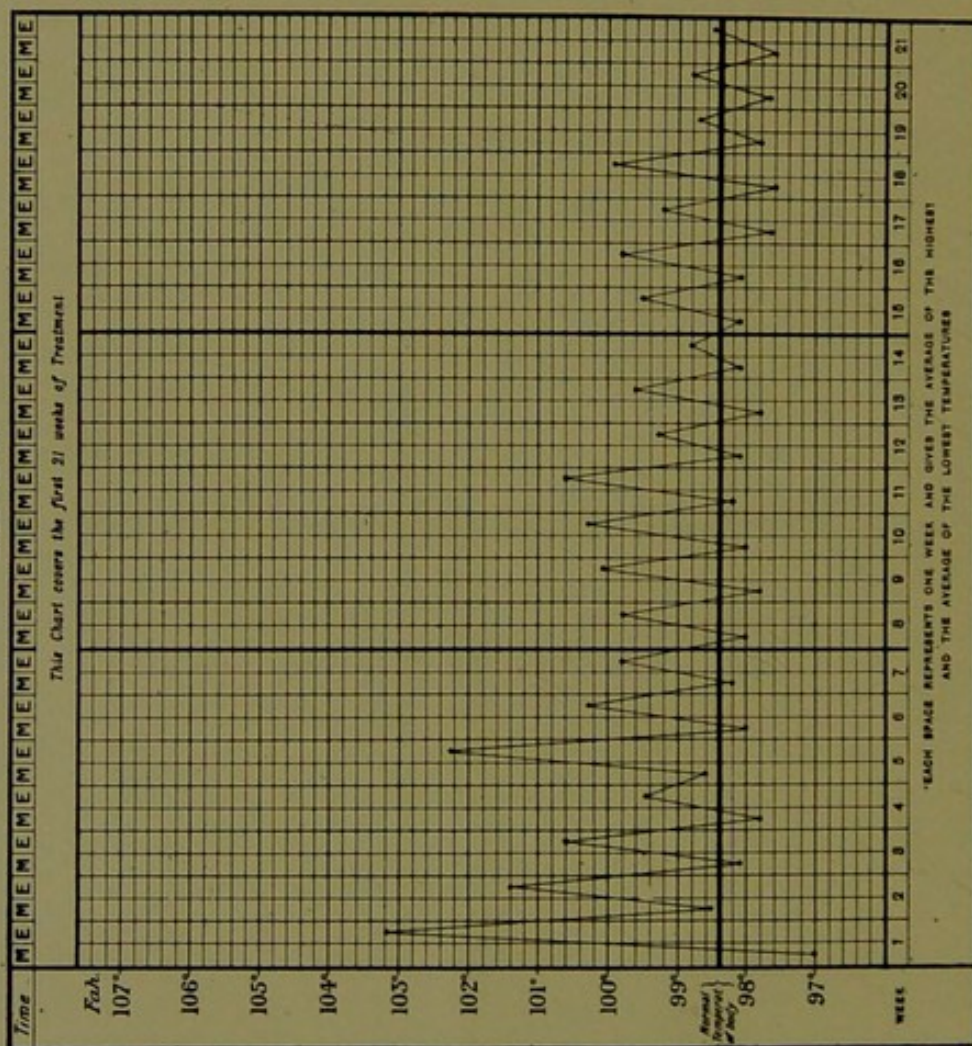


(For condensed Chart of this Case see other side.)

[To face page 8.]

CASE No. IV.

This Chart covers the first 21 weeks of Treatment



powerful therapeutically as the CHI_3 in ether alone. The abscess was laid open into the rectum, and after a few stuffings was treated by CHI_3 insufflations. It is quite healed.—[Professor ARTHUR GAMGEE.]

Cases 5, 6, and 7 have many features in common. The earliest symptom in each was pleurisy, then slight consolidation, comparatively rapid recovery and return to work; early relapse, more prolonged illness, more extensive infiltration and breaking down, extension of pleurisy and more restricted chest action, great flattening of thorax, obvious loss of lung substance although distinct signs of a cavity exist only in No. 7, large numbers of tubercle bacilli in all (Royal College of Physicians' Laboratory); digestion good in 5 and 6, but ruined in 7 by previous efforts at overfeeding. All had constitutional disturbance, although the temperatures did not rise higher than 101° to 102° ; all were incapacitated for work; on screening, the action of the diaphragm is very slight in 5 and 6; and in 7 is quite lost.

CASE No. 5.

[Dr. J. E. MOORHOUSE.]

M., age 21; height, 5 ft. $7\frac{1}{2}$ in.; weight, 9 stone 7 lb.; grocer's assistant; social condition, penury; probable tubercular history. Illness began four years ago with hæmorrhage and pleurisy; principal lesion on left side, but both affected. He returned to work after four months' treatment, and has continued so without any relapse, and his weight has risen from 9 stone 7 lb. to 10 stone 2 lb.; his temperature is normal, cough and expectoration very slight, but there are still a good many bacilli in the sputum. The treatment has been continued two or three times a week while he has been at work. It is now a year since he resumed work, and he works seventy hours per week. Under more favourable conditions I feel sure he would have done still better.

CASE No. 6.

[Professor WYLLIE.]

M., age 40; social condition, good; bad tubercular history in family; one brother emigrated on account of his health, one

brother died of hæmorrhage from the lungs being phthisical, and one is suffering from chronic phthisis. Illness began six years ago with pleurisy, from which he recovered. He relapsed very seriously four years ago, both lungs involved. He has now been at work for two years, and for the past eighteen months has travelled regularly seventy miles a day, and I do not think in that time he has had more than two weeks' holiday. He still coughs in the morning, and bacilli are still present. As a precautionary measure he generally gets an injection on Saturdays and Sundays. Four years ago little hope was entertained of his recovery.

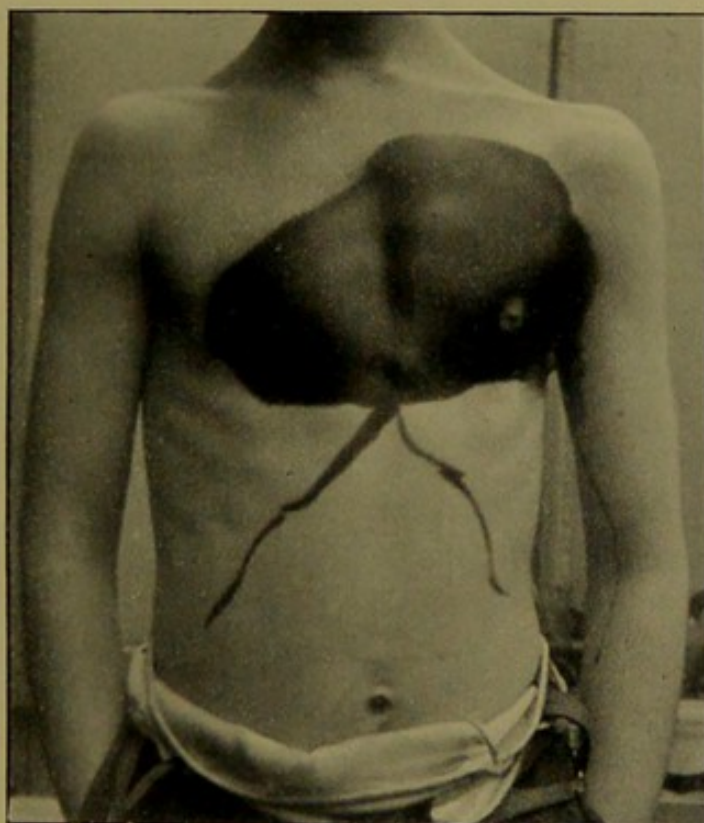
CASE No. 7.

M., age 25; height, 5 ft. 4½ in.; weight, 8 stone 8 lb.; social condition, penury. Illness began three years ago with pleurisy; both sides were affected, but the principal lesion was on the right side. After six months' treatment he was compelled to resume work, and has continued so uninterruptedly for nine months. With a history of pleurisy on both sides, a cavity at the right apex, and a bilobed bilateral infiltration, it is rather remarkable that he can work at all. Despite the continuance of the treatment, as in 5 and 6, his lung condition has not improved, although up to the present I do not think he has gone back. His weight increased 6 lb. before resuming work, but is back now to what it was. During the months of September and October he left home at 8.10 a.m., returning at 11.45 p.m., so the conditions under which he had to be treated could not possibly have been worse. He averages from sixty to seventy hours a week, and travels daily ten miles to work.

CASE No. 8.

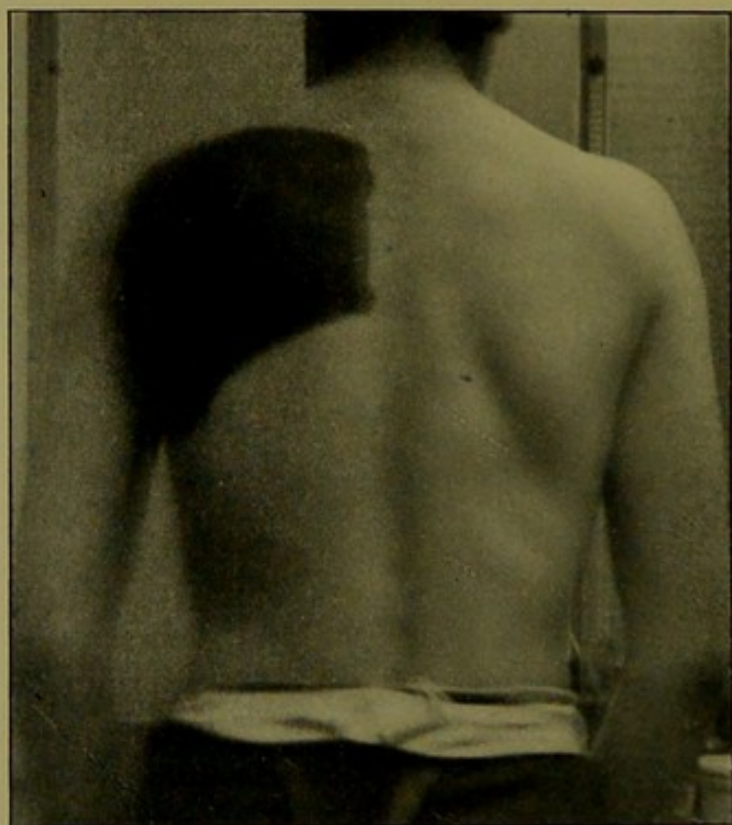
M., age 20; no tubercular history; delicate as a child; said to have had atelactesis pulmonum; evidence of rickets in thorax; but no deformity or curvature of spine which might suggest former caries. About six years ago he had what seems to have been an abscess in the chest, and I suspect it is in the post mediastinum; has involved the greater part of both lobes of the left lung, and empties through a big bronchus. He cannot lean back in a chair, and only sleeps semiprone on his right side. The right lung is perfectly healthy; the left apex and base both anterior and posterior are also healthy, but elsewhere is absolutely dull, all round back and front and under axilla, and there are no accompts anywhere. This dulness extends across to the right side, and the heart beat is felt near

CASE No. VIII.



[To face page 10.]

CASE No. VIII.



the right axillary border in the fourth and fifth interspaces. Where and how this abscess originated can now only be matters of conjecture. It was of importance, however, to decide whether the lobes of the left lung were actually involved or only crushed solid and collapsed. The only way to ascertain this was by an anatomical examination of the discharge. A large quantity of sputum was diluted with an equal quantity of Aq. chloroformi, well shaken, and centrifuged. After much search small fragments of elastic tissue and a few epithelial cells were discovered. He used to expectorate a pint of sanious foetid pus in twenty-four hours, and had occasional rigors and hæmorrhage; enormous numbers of tubercle bacilli and cocci. He has been under treatment three winters. He now expectorates 9 oz. It is no longer foetid, and few organisms besides the tubercle are found, but these still exist in considerable numbers. The area of absolute dullness is not so extensive, and faint respiratory sounds are returning at its periphery. The apex beat is coming nearer the right mammary line. Had the condition not been established for three years before I saw him, he might have been assisted by surgery, but the permanent displacement of his heart, embarrassment of breathing, and the danger of administering anæsthetic, contra-indicated this. He would probably have died on the table or soon after. He takes the ethereal solution in liquid paraffin easily, but five minims of the pure ethereal solution occasions breathlessness for hours. His utmost possible is a quiet, uneventful life; he can walk several miles, shoots and fishes, his appetite is good, and he has no temperature.—[Professor ARTHUR GAMGEE.]

CASE No. 9.

[Dr. LIVINGSTON-LOUDON.]

M., age 28; height, 6 ft. 2 in.; weight, 9 stone; very pronounced tubercular history; duration of illness, before iodoform treatment, six years. So soon as it was detected sanatorium treatment in Switzerland and at home was carried out, with guaiacol, cod-liver oil, etc. Steady advance occurred in spite of every effort. There were cavities in both upper lobes, larger in the right, involvement in both lower lobes, bilateral pleurisy, very restricted action, and great flattening of chest. Over the lower lobes posteriorly the muscular effort of inspiration is visible for quite a measurable interval of time before the very short respiratory sounds are audible. Patient could only sleep on his back. He had slight fever, considerable cough and expectoration, large numbers of tubercle

bacilli. Sixteen months ago he had an exacerbation; temperature rose to $103^{\circ}6$; pulse, 132; respiration, 32; heavy night sweats; great increase of expectoration; clay stools; bilious vomiting; nausea and loathing of food; in fact, his whole appearance suggested the acute symptoms which so often precede the final dissolution. With many misgivings and very little hope for any response the treatment was begun. The temperature began to fall by fractions of a degree, and after several months regained what appeared to be his normal; that is, it rises to 99° or $99^{\circ}2$ either in the afternoon or evening. He is now the subject of hypertrophic pulmonary osteoarthritis and every now and again expectorates calcareous particles. The expectoration has markedly decreased. He can now sleep on his right side, his appetite is good, and while he can never hope to work, he gets about wonderfully. Great cold or a little wind at once embarrasses his breathing. The crack-pot sound can still be elicited over the right cavity, but not over the left; both have shrunk very much. He has had a very large number of injections, which, even with the addition of liquid paraffin, occasion breathlessness for some hours, and consequently cannot be given oftener than two or three times a week. It is almost unnecessary to add that Cases 6, 7, 8, and 9 all exhibit the clubbing of finger-tips and cyanosed extremities so common in chronic phthisis.

CONCLUSION.

To criticise one's own results with something of impartiality is not easy. It is particularly difficult to be exact and not mislead in a disease so protean as phthisis, or to deduce much from such a small number of cases, yet some attempt is necessary at this stage. Cases 1 to 5 I would bracket together as "arrested." Their condition has been changed from what (in the opinion of others as well as my own) was a state of danger to one of comparative safety. They have practically lost their coughs, and in the occasional sputa only a very few tubercle bacilli can be found. In Cases 1 and 2 they have quite disappeared. However, I attach no special importance to this. It might only mean that at the time no tubercular focus was breaking down, and probably an animal inoculation would have disclosed tubercle. In Case 3 I once failed to find any, but the Royal College of Physicians'

Laboratory found a "very few" afterwards. These cases have been under no restraint. The diet and general hygiene has been that most suited to each particular one. It is hardly credible that five consecutive patients should attain this measure of recovery by chance in the course of one general practice. If so, it is a remarkable coincidence. So far as I know, the climate of Dunblane has no special reputation in phthisis. I have known several cases leaving it in search of a better. The one factor common to all has been the infusion of iodoform, and to this I attribute their immediate recoveries. In Cases 6 and 7 I would say it has "retarded" the advance. They are examples of what are euphuistically described as "economic cures." Case 8 is very exceptional and rare, at least in general practice, and Case 9 has been so shattered that passive existence is his highest possible. While the continued efforts of a physician to save a patient generally have a beneficial effect on the patient's mental condition, they unfortunately do not always influence for good the actual disease, and, while admitting that patients' statements as to their feelings of betterness are not very reliable clinically, especially in phthisis, we cannot exclude such evidence altogether. Both 8 and 9 believe that they have received benefit. The improvements observed are noted in their respective reports, and I must leave the open-minded to decide. As time goes on there will probably be some readjusting in these classes, but however they develop, if I can keep in touch with them, the issues will be admitted. If Cases 6 to 9 have not responded so well as 1 to 5, their duration must be remembered; also obliterated capillaries, much interstitial change, and thick walled cavities offer physical obstructions to the free circulation of the fluid. Besides, it is a clinical experience that iodoform is not so potent in caseous as in recent tubercle. This is to be regretted, for patients who have struggled hard unaided for five or six years, *by that very opposition*, declare that they would have done well could we at the beginning have brought them efficient assistance. As there is always a relationship

between the duration of an illness and the period required for its recovery, such cases may do so yet if the physician neither admits defeat nor recognises trouble. The contention in my first paper was that "the continuous successful injection of an ethereal solution of iodoform was followed by improvement, that it was innocuous in moderate doses and powerful to arrest pulmonary tuberculosis." I trust from the rather hopeless series of cases enumerated it will be conceded that I have gone some way to establish this.