

A plea for the more general use of tuberculin by the profession : being the address given at the Annual Meeting of the Dermatological Society of Great Britain and Ireland, May 24th, 1905 / by Dr. McCall Anderson, Regius Professor of Medicine in the University of Glasgow.

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Anderson, McCall, 1836-1908.
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Publication/Creation

Glasgow : James MacLehose and Sons, 1905.

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A PLEA

for the

More General Use of Tuberculin by the Profession

BEING THE ADDRESS GIVEN AT THE ANNUAL MEETING OF THE
DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND
IRELAND, MAY 24TH, 1905

By

DR. M'CALL ANDERSON

Regius Professor of Medicine in the University of Glasgow
Representative of the University on the
General Medical Council



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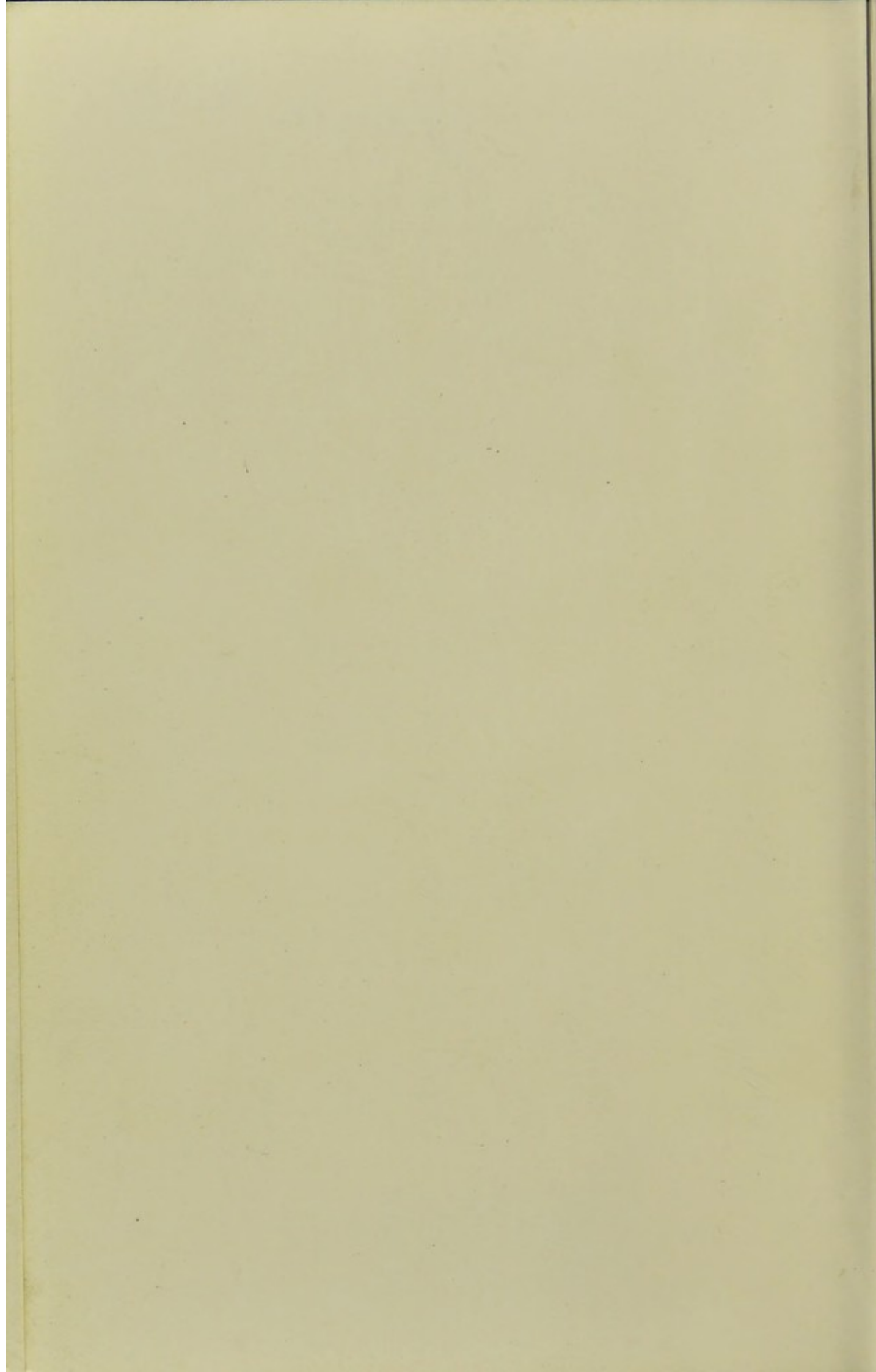
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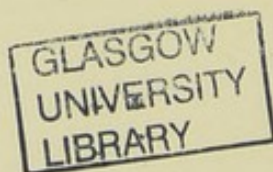
BY THE SAME AUTHOR.

"LECTURES ON CLINICAL MEDICINE," delivered at the Royal and Western Infirmarys of Glasgow. 8vo. pp. 268.

"SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM."

"CONTRIBUTIONS TO CLINICAL MEDICINE." 8vo. pp. 415.

"A TREATISE ON DISEASES OF THE SKIN," with 4 chromo-lithographs, steel plate, and numerous woodcuts. pp. 761. 2nd edition.



A Plea for the more general use of Tuberculin by the Profession.

WHEN the Council of this Society on a former occasion did me the honour of inviting me to give the address at their Annual Meeting, I was reluctantly compelled, owing to the pressure of other work, to forego the pleasure of complying with their request. I am therefore very sensible of their kindness and consideration in again giving me an opportunity of doing so. For to me it is always a source of pleasure and satisfaction to meet my professional brethren, gathered together from different parts of the country, to discuss with them some of the knotty problems encountered in our daily work, and to learn from one another how these can best be solved.

My own interest in Dermatology was first aroused in 1859, when, at Vienna, I sat at the feet of Hebra, who was at once one of the clearest, most interesting, and most attractive of clinical teachers, and one of the most genial of men. At that time the profession at large took little interest

in the subject, and knew less: it looked upon specialities as the 'abomination of desolation,' while in England there were only two men whose names stood out as authorities—Startin, whose therapeutic acumen has left its mark upon the treatment of to-day, and Erasmus Wilson, whose invaluable services to the science of dermatology will not soon be forgotten. When we institute a comparison with the position of to-day, what a contrast do we find! Specialities are no longer tabooed: we take pride in our *British Journal of Dermatology*, and in our special departments for diseases of the skin in all well-regulated General Hospitals, while the country teems with expert dermatologists, and every large city has the benefit of the services of distinguished men, many of them of European reputation, having added materially to our knowledge alike in its scientific and in its practical aspects.

I understand that this Society, besides many expert dermatologists, includes a considerable proportion of gentlemen who, while taking a deep interest in the study of diseases of the skin, are likewise engaged in general medical practice. It has therefore occurred to me that, in selecting a subject for your consideration, it might be well to take one which has not only an intimate connection with cutaneous therapeutics, but is also full

of interest in the domain of general medicine. I propose therefore to refer to the value of Tuberculin, in connection with which I had the honour of reading a paper at the Medical Graduates' College and Polyclinic about five years ago—for further experience of it has only served to confirm the opinion which I was then led to form of its valuable properties.

I have read with great pleasure Mr. Malcolm Morris's most interesting Harveian lecture on 'Some New Therapeutic Methods in Dermatology' and one which is most valuable as epitomising the results of a long experience. I heartily agree with him in his observation with reference to chronic affections of the skin, in which he says: 'I have been led to the conclusion that the general principle of treatment may be expressed in the single word, reaction.'

But my experience does not coincide with his remarks in reference to the use of Tuberculin. 'Any one' he says 'who has seen the violent reaction caused by Koch's tuberculin in its original form . . . on patches of lupus vulgaris must have been struck by the change which had come over the scene of disease when calm was restored. It looked as though at last Huxley's therapeutic ideal had been realised and it had "become possible to introduce into the economy a molecular mechanism

which, like a very cunningly contrived torpedo, shall find its way to some particular group of living elements, and cause an explosion among them leaving the rest untouched." The hopes thus raised were doomed to speedy disappointment, for it soon proved that the "torpedo" caused explosions not only in the places where cutaneous disease actually existed, but in hidden and—it might be—unsuspected points in vital organs like the lungs. Theoretically it was admirable, but it was not war in the therapeutic sense. The impossibility of limiting the reactive energy of tuberculin to the skin prevents in many cases the utilization of the specific properties in the treatment of lupus vulgaris.' But, to my mind, this is one of its unique advantages. For we are thus enabled to attack and, in an early stage, to destroy unsuspected foci of disease in internal parts, before they have become a source of danger, illustrations of which will be given later on, and to prevent a re-infection of the skin at a future time.

When first introduced by Koch medical men tumbled over one another in their eagerness to obtain a supply of this preparation which was supposed to ring the death-knell of tubercular disease. The consequences were just what might have been expected: it was used too often in a reckless and indiscriminate manner, in cases altogether

unsuitable, in doses too large and too frequently repeated and enlarged, thus leading to disappointment and disaster. Hence the extravagant laudation with which the discovery was hailed, and for which Koch was not responsible, soon gave place to an equally absurd depreciation of its merits, so much so that I think I am within the mark when I say that it finds no place in the armamentarium of the great majority of the Medical Profession. I have taken the trouble of looking over the indices of the last six volumes of the Transactions of this Society and have failed to find the heading of 'Tuberculin' in any one of them.

Like most other powerful remedies it is useless or even hurtful if not administered with the requisite knowledge and skill. Having employed it continuously since its discovery I have naturally come to know pretty well the most suitable class of cases and the precautions to be adopted in its use, while almost invariably cases of cutaneous tuberculosis have been benefited, and in many the manifestations have entirely disappeared.

No one is disposed to deny that the X-Ray, and, above all, the Finsen light treatment have yielded admirable results, and constitute a valuable addition to our therapeutic measures; but I am bound to add that there are many cases in which, from their situation or from their extent, they are

unsuitable. Nor are we in a position to say—although the same remark applies also to the tuberculin treatment—that a relapse may not occur, especially if the general health is not attended to. For we must not forget that two factors have to be taken into account in dealing with tubercular disease—1st, the tubercle bacillus and its toxins, and 2nd, the soil favorable to its germination and development. So that, in order to obtain permanent results, it is obvious that, in addition to destroying the micro-organism, we must simultaneously adopt measures with the view of changing the soil upon which it flourishes; and that should be attempted by means of good and abundant nourishment, living in the open air, and the use of tonics, cod liver oil, phosphorus, and other anti-strumuous remedies.

With these preliminary observations I proceed to give a few illustrations of the value of tuberculin (1) in diagnosis, and (2) in treatment.

1. *The Value of Tuberculin in Diagnosis.*

In considering the means to be adopted for the prevention of tuberculosis, one of the points naturally most insisted upon is the necessity for preventing the sale of tuberculous meat, and above all of the milk of tuberculous animals; and with practical unanimity it is conceded that the injection of tuberculin is a very certain test of the

presence or absence of tuberculous disease in them. How is it then that the tuberculin test is confidently relied upon for the diagnosis of tuberculosis in animals, while medical men, who applaud its use in animals, with rare exceptions fail to take advantage of it in the case of human beings when a doubt exists as to the diagnosis? It may possibly be due to the belief that, though useful in the case of animals, it is not to be relied upon, or is not free from danger in man. But I can say, after having used it many thousands of times, that, with reasonable care, it is both safe and equally efficient in the human subject. Let me give you several illustrations.

CASE 1. A boy (Jas. Best), aet. 8 years, whose family and previous personal history were satisfactory, came under my care on the 4th of July of last year (1904) complaining of abdominal swelling and pain. His illness commenced three months previously with diarrhoea: he had four or five motions per day which were fluid, rather offensive, and greenish, yellowish, or whitish in colour. The diarrhoea ceased about four weeks before admission; but two weeks prior to this the abdomen began to swell, and he complained of tenderness on pressure at its lower part. His appetite also failed, he lost flesh and colour, had a slight cough without expectoration, with occasional night sweats, but no fever.

On admission the tongue was slightly coated, the appetite bad, and the bowels constipated, but there was no pyrexia. The abdomen was much distended, tense, and tender in the umbilical and hypogastric regions: the peritoneal cavity contained a fair amount of fluid. The examination of the lungs and other organs was negative.

There was no question that in this case the peritoneum was inflamed, and we know that most cases of chronic peritonitis in children are tubercular, but to make sure I tested it with tuberculin.

The first injection on July 9th, 1904, of .25 c.c. of 1 in 1000 OT sent the temp. next day up to 104.4, while the second on July 16th of 0.75 c.c. resulted next day in a temp. of 103.2. The question of the tubercular nature of the peritonitis was thus settled. I may add that the treatment with tuberculin was continued. He had between July 9th and Oct. 4th, 22 injections, the last strength being 1.5 c.c. of 1 in 10 with no reaction. Shortly after this, after having been shown to the members of the Glasgow Medico-Chirurgical Society, he was dismissed in perfect health, having gained 7 lbs. in weight, notwithstanding the fever following most of the injections. I have at present in my wards another very similar case in which the result has been equally satisfactory. (Temperature chart shown.)

CASE 2. On March 20th, 1903, a young woman (Elizabeth Kennedy), aet. 24, was admitted at the Western Infirmary suffering for two years from an ailment which was supposed to be Hodgkin's disease, and which set in after her second confinement. She was weak, emaciated, and pallid, and had numerous glandular enlargements, varying in size from a pea to a pigeon's egg, around the neck, in the left axilla, and to a less extent in the right inguinal region, swellings which commenced on the right side of the neck; they were hard and painless, and some of them confluent. Examination of blood—Red corpuscles 4,850,000, whites 6,200 per cmm. The former exhibited no change of shape, and no abnormal forms were seen. They stained well and equally with eosin, and the haemoglobin equivalent was undisturbed. Leucocytes—Polymorpho-nuclear relatively diminished. Hyaline cells of both varieties (medium and large) increased: no abnormal forms (*e.g.* myelocytes, etc.). The changes were in accord with those met with in Hodgkin's disease, but similar conditions are met with in other diseases (malaria, etc.) [Ferguson].

I suspected that these glandular enlargements might be tubercular, and as a test $\frac{1}{2}$ c.c. of 1 in 1000 tuberculin was injected, which in sixteen hours raised the temperature from 98.2° to 104° , while

the glandular enlargements became tender, and there was some redness of the skin over them, thus settling the diagnosis. I may add that the tuberculin treatment was continued along with generous diet, phosphorus, and keeping the patient as much as possible in the open air, and the results were very satisfactory, as the glands became much reduced in size and the general health was re-established.

CASE 3. On the 11th of January last a boy (Joseph Wrigley), aet. 10, was admitted on account of patches of eruption on left arm, on each buttock, under the right ear, and on the forehead, of four years' duration in all. During that time he has suffered from numerous patches of eruption of an indolent character and slow to subside. They have all been similar in character; they began as small spots, which spread circumferentially, attaining sometimes the diameter of 2", but without any round abrupt elevated edge. The colour of the patches was dusky-red, and most of them terminated by suppuration and crustation, but left very little in the shape of scars.

From the appearance of the eruption no one could be sure of its nature. I suspected at first that it was tubercular, all the more as a sister and several uncles and aunts were reported to have died of phthisis. But, on the other hand,

on examination of the boy, who was rather thin, pale, and delicate looking, the two upper central incisors presented the typical Hutchinson shape, and I ascertained that his mother had had five miscarriages, the first three before she had any living children.

These circumstances led me to the conclusion that my first supposition was incorrect, and that the eruption was probably based upon a hereditary syphilitic taint. But, in order positively to exclude tubercular disease, he got two injections of tuberculin, the first of $\frac{1}{4}$ c.c., the second of $\frac{1}{2}$ c.c. of 1 in 1000. These were not followed by either local or constitutional reaction. (Unfortunately patient's parents were going to England, and therefore removed the boy before anti-syphilitic treatment could be given.)

In the paper before referred to, and in other communications to medical societies, I have given other illustrations of the employment of tuberculin for purposes of diagnosis, and did time permit I could quote others by the dozen, because, as a matter of routine, it is always used in my wards in doubtful cases, so that there is no question that it is *of priceless value* in diagnosis, and it is therefore a surprise to me that it is not in general use by my professional brethren.

But over and above this, it sometimes directs

our attention to *unsuspected foci of tubercular disease*. Thus, in a case of lupus of the face, when the tuberculin was commenced, the patient began to complain of pain in the right elbow joint, and in a case of phthisis, in which the physical signs were limited to the left lung, moist râles appeared in the right mammary region. In these and similar cases, after three or four injections, the new symptoms lighted up disappeared: the tuberculin had ferreted out and destroyed unsuspected foci of disease.

2. *The value of Tuberculin in treatment.*

CASE 4. The first case is that of a disease with regard to which dermatologists are occasionally consulted owing to the discoloration of the skin which accompanies it—namely, Addison's disease, and which to me was deeply interesting. It was that of a married woman (Esther Prentice), æt. 31, who was admitted on the 9th of May of last year, complaining of great weakness, dyspnoea, and discoloration of the skin, symptoms of 18 months' duration in all.

Her father and mother are alive and well, and, of a family of 12, only four are alive, all the others having died in infancy with the exception of one who was said to have succumbed to tubercular meningitis.

Patient is married and has five children alive, one of whom suffers from enlargement of the glands of the neck. Shortly after her marriage she had an abortion at the third month. This was followed by a blood-stained discharge from the uterus, for which she was curetted with great improvement. At this time she was anaemic, and continued so, never feeling well until 1902. In the month of August of that year she had a miscarriage at the sixth month, with much haemorrhage. She was very ill at this time, and has never felt well since. Her menstruation, too, became very irregular as to time and amount, and she felt quite unfit for her household duties. A living child was born in September, 1903. From this time she felt very much worse, being exhausted on the slightest exertion.

State on admission. She complains of an intense feeling of weakness and exhaustion, of want of appetite, constipation, headache, and pain across the loins, and of dyspnoea and palpitation on the slightest exertion. Her skin is deeply pigmented, a condition which is steadily on the increase. The buccal and conjunctival mucous membranes are pale; she is profoundly anaemic, and there is a venous hum in the vessels of the neck. But she is fairly well nourished, although she has lost 18 lbs. in weight since the onset of her illness.

She has some bronchitis, with a few sonorous and sibilant râles throughout the chest. The urine is normal.

Blood examination.

Red blood corpuscles, 3,360,000 per c.m.

White blood corpuscles, 3,800 „

Haemoglobin, - 45 per cent.

The red corpuscles are somewhat irregular in shape and size (slight poikilocytosis), and vary much in colour, showing wide fluctuations in haemoglobin content, but there are no evidences of grave alteration of the blood. The appearances are those of a moderately severe secondary anaemia, and pernicious anaemia is definitely excluded.

For the last two years she has frequently suffered from weak turns, and has had several syncopal attacks, when she fell to the ground, although she has never entirely lost consciousness.

Owing to the fact that most cases of Addison's disease are the result of tubercular disease of the supra-renal capsules, I determined to treat her with tuberculin. The third injection was followed next day by a temperature of 100.2, and she then spontaneously complained for the first time of *pain in both hypochondriac regions*, opposite the supra-renal bodies, while, the day after the fourth injection (same strength, 1 c.c. of 1 in 1000), she again complained of deep-seated, dull pain in the same

situations, while the temperature was 103.4. The dose was therefore not increased; indeed, after the eighth and last injection, the thermometer registered 104.2.

The first injection of .5 c.c. of 1 in 1000 was given on May 25th, the last on July 4th. On June 23rd the following report was made. Within the last fortnight there has been a marked change in patient's colour, as the pigmentation has almost entirely disappeared. She was now allowed up in the intervals between the injections, felt fairly strong and well, assisted the nurses in the ward, made the beds, etc. She also looked strong and well, and, as so often happens with hospital patients whenever their immediate troubles have disappeared, insisted upon leaving, although the course of treatment was not half completed, and I have not seen her since. I do not bring this case forward as an illustration of cure, but of notable improvement in a very short time of a disease which is the despair of the physician, and because, as far as I know, it is the first time that such treatment has been attempted. (Temperature chart shown.)

I now proceed to give a few illustrations of lupus similarly treated.

CASE 5. A boy (Edward Kinney), aet. 14, was admitted on 1st December, 1903.

Condition on admission. There was an extensive

lupoid affection of the nose and upper lip, which were swelled, and a yellowish-green crust covered the top of the nose. There was also extensive antero-nasal ulceration of the same nature : the cartilage of the septum was perforated, and on both sides the inferior meatus was completely filled with organised granulation tissue. The right side of the upper lip was also ulcerated.

History of illness. About six years ago, on recovering from a cold, he noticed that his nostrils remained blocked, but there was no pain, only some difficulty of breathing. From time to time yellowish crusts came away, giving temporary relief. Eighteen months later the tip of the nose became red, swelled, and glazed, and this condition slowly spread over the greater part of it. Nine months before admission the tip of the nose ulcerated, a crust formed upon it, and about this time the lip became affected.

Treatment. During the first two years he seems to have been treated with various lotions and ointments, and then it was scraped and cauterised in the Kilmarnock Infirmary, without benefit. In August, 1903, he went to the Electrical Department of the Western Infirmary of Glasgow, when the Finsen Light treatment was commenced, beginning with five minutes' exposure, with 10 ampères of current. The exposure was gradually

LUPUS VULGARIS OF 6 YEARS' DURATION.

EDWARD KINNEY, aet. 14, admitted Dec. 1st, 1903.

AFTER TREATMENT.

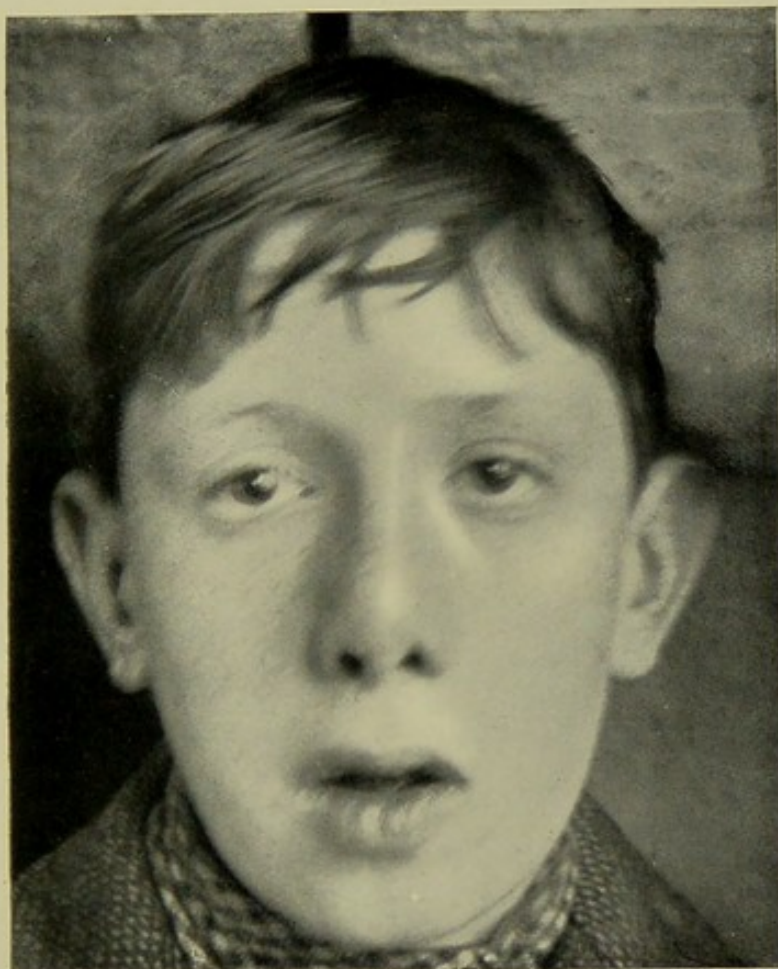


FIG. 1.

TUBERCULIN INJECTIONS.

1st Injection. .25 c.c. of 1 in 1000. Old Tuberculin, Dec. 5, 1903.

Last Injection. 1 c.c. of 1 in 100.

Number of Injections, 36.



increased to 20 minutes, and the current to 12 ampères. This treatment was continued without benefit until the 1st December, and then he was sent to my wards.

Tuberculin treatment was commenced on December 5th and continued till May 13th, the first injection being of 0.25 c.c. of 1-1000, and by March 26th, 1 c.c. of 1-10 was injected, the usual maximum dose. He remained untreated until April 28th, when, as a precaution, he had five more injections, beginning with 1.5 c.c. of 1-1000, and ending on May 13th with one of 1 c.c. of 1-100.

On dismissal on 18th May he looked and felt very well, the external eruption was gone, the nostrils were healed, and were quite free.

(Temperature Chart shown.) See Fig. 1 after treatment.

CASE 6. A boy (Charles M'Cartney), aet. 14, was admitted into the Western Infirmary of Glasgow on March 15th, 1904.

Condition on admission. The central portion of the right ala nasi is eroded, and the remainder is cicatrised. The lower half of the nose in front, and on the left side is eaten away, thickened, and livid, and covered with fine scales, while the margin is fairly well defined. The entire left ala nasi and neighbouring portion of the nose is ulcerated, and

covered with greenish-brown crusts. The nostrils are much blocked, especially on the right side, with granulation tissue and crusts. The central portion of the upper lip, down to the edge of the mucous surface, is ulcerated, the margins being well defined. The whole surface uncovered by crusts has a violet tint. There are two typical lupoid ulcers on the right arm.

History of illness. The eruption began about $2\frac{1}{2}$ years before admission, when a small raised spot appeared on left forearm, which ulcerated, and a crust formed. A week or two later a spot, similar to the first, appeared about one inch further up the arm, which ran a similar course. The surrounding skin has gradually become thickened and reddened, and slightly scaly. These patches have slowly extended, but are very insensitive. Shortly after the appearance of the eruption on the arm, he noticed a small scab on the right side of the nose, and from thence the disease slowly spread till it reached the dimensions present on admission. When seven years of age he suffered from disease of the left tibia, which was probably tubercular, and a brother died at the age of 20 from tubercular disease of the spine.

Treatment. On 6th November, 1902, X-ray treatment was commenced in the Electrical Department of the Western Infirmary, and continued



LUPUS VULGARIS OF $2\frac{1}{2}$ YEARS' DURATION.

CHARLES M'CARTNEY, aet. 14, admitted Mar. 15, 1904.

BEFORE.

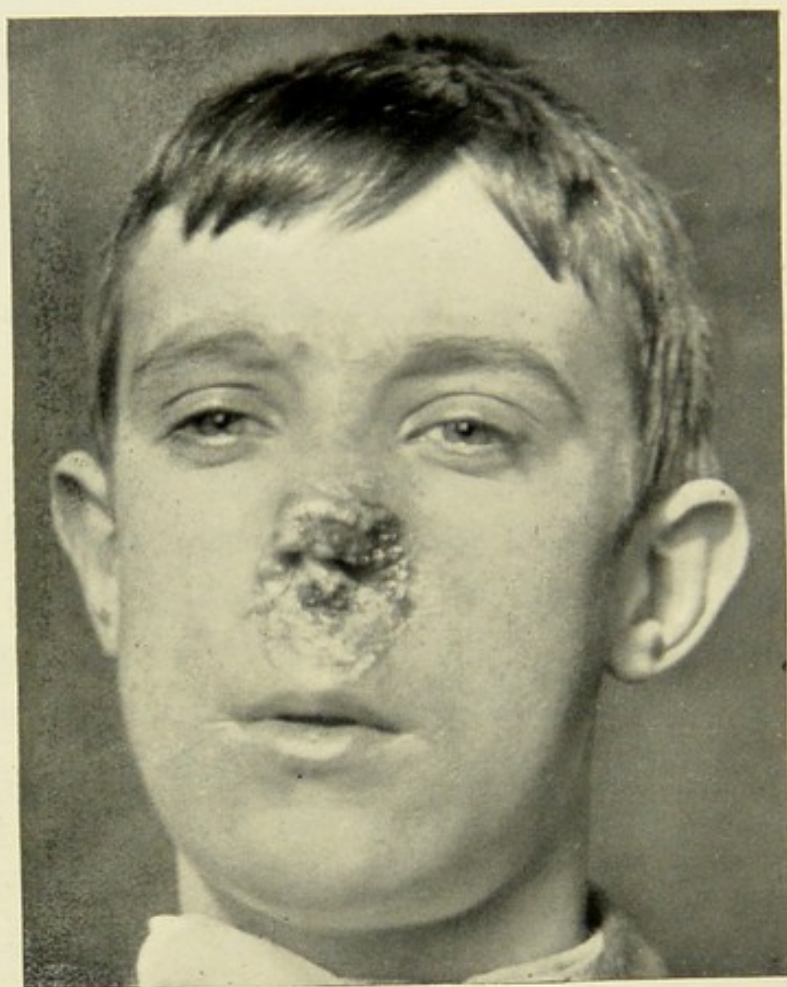


FIG. 2.

TUBERCULIN INJECTION.

1st Injection. .25 c.c. of 1 in 1000. Old Tuberculin, March 19, 1904.

Last Injection. 1 c.c. of Pure Old Tuberculin, Sept. 6, 1904.

Number of Injections, 40.

AFTER.



FIG. 3.



daily for 10 minutes until 20th December; but as there was no improvement the boy ceased attending.

When admitted to my department on March 15th, 1904, it was determined to use tuberculin. He had 40 injections in all, the first of 0.25 c.c. of 1-1000 on March 19th, the last of 1 c.c. of pure tuberculin on September 6th.

This patient made an excellent recovery, and long before the tuberculin treatment was stopped he was quite well. His weight on admission was 5 stone $10\frac{3}{4}$ lbs., and when he left the Hospital 6 stone 9 lbs. (Temperature chart shown.) See Figs. 2 and 3, before and after treatment.

CASE 7. A young woman (Lizzie Campbell), aet. 18, was admitted to the Western Infirmary of Glasgow on February 22nd, 1904. Family and previous personal history excellent. Four years ago a 'soft pimple' appeared on the middle of the bridge of the nose, which slowly increased in size, and broke down, leaving an ulcer covered with a greenish crust. The ulceration went on extending, while the surrounding skin was elevated and dusky-red.

A year after the onset the ulceration was scraped at the Infirmary at Stirling, and healing took place; but the disease soon reappeared, and spread

to the point of the nose and to the right ala nasi, subsequently involving the right side of the upper lip. At the close of the second year it was again scraped, but with only temporary improvement, for the ulceration soon reappeared, and involved also the left ala nasi, while the right nostril was obstructed.

Condition on Admission. The whole of the lower half of the nose, the right side of the upper lip, and the septum nasi are covered with greenish-yellow crusts, on removing which the parts are seen to be ulcerated, soft, and boggy.

Treatment. First injection of tuberculin, $\frac{1}{2}$ c.c. of 1-1000, on March 6th, sent the temperature up to 103° next day, while the second, on the 15th, was followed by a temperature of 105° ! and on each occasion inflammation occurred at the seat of the disease, with exudation, the surrounding parts being the seat of redness and swelling. Subsequent injections led to decreasing reaction, until at last there was none at all. She had 32 injections, the last on July 31st, when the strength was 1 c.c. of pure tuberculin.

This patient recovered perfectly, there being only slight scars and very little deformity, and on dismissal she looked and felt quite well, and had gained nearly a stone in weight. (Temperature

LUPUS VULGARIS OF 4 YEARS' DURATION.

LIZZIE CAMPBELL, aet. 18, admitted Feb. 22, 1904.

BEFORE.

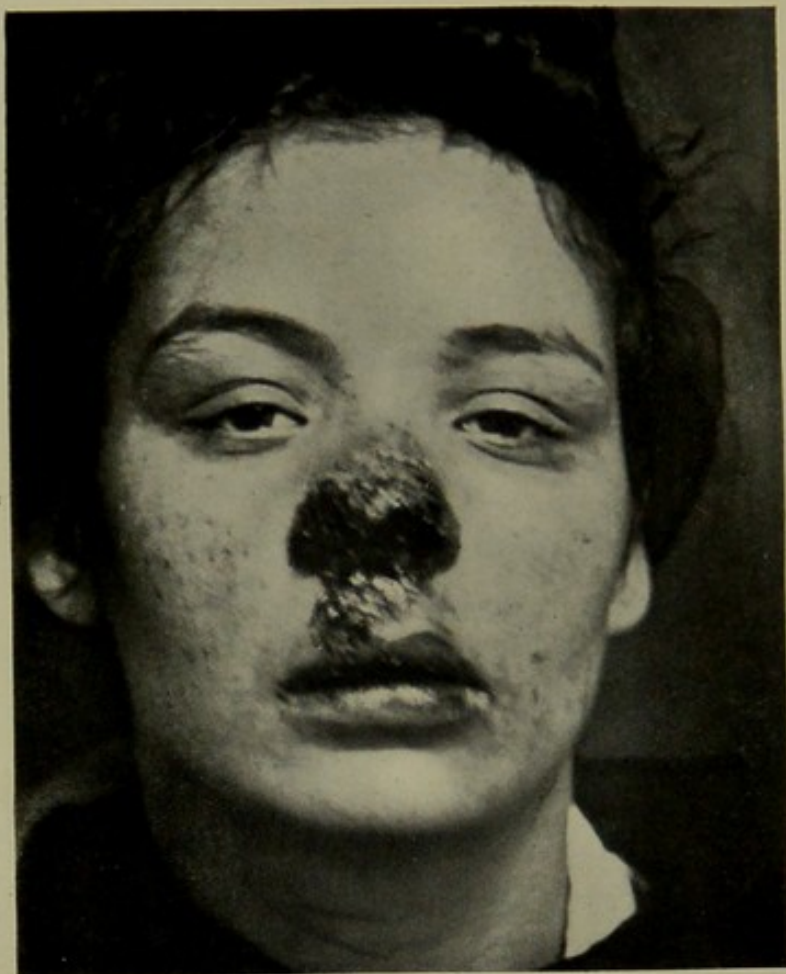


FIG. 4.

TUBERCULIN INJECTION.

1st Injection. .5 c.c. of 1 in 1000. Old Tuberculin, Mar. 6, 1904.

Last Injection. 1 c.c. of Pure Old Tuberculin, July 31, 1904.

Number of Injections, 32.

AFTER.



FIG. 5.



chart shown.) See Figs. 4 and 5, before and after treatment.

CASE 8. A girl (Lizzie Gordon), aet. 12, came under my care on February 18th, 1904, suffering from Scrofuloderma of the arms of three years' duration.

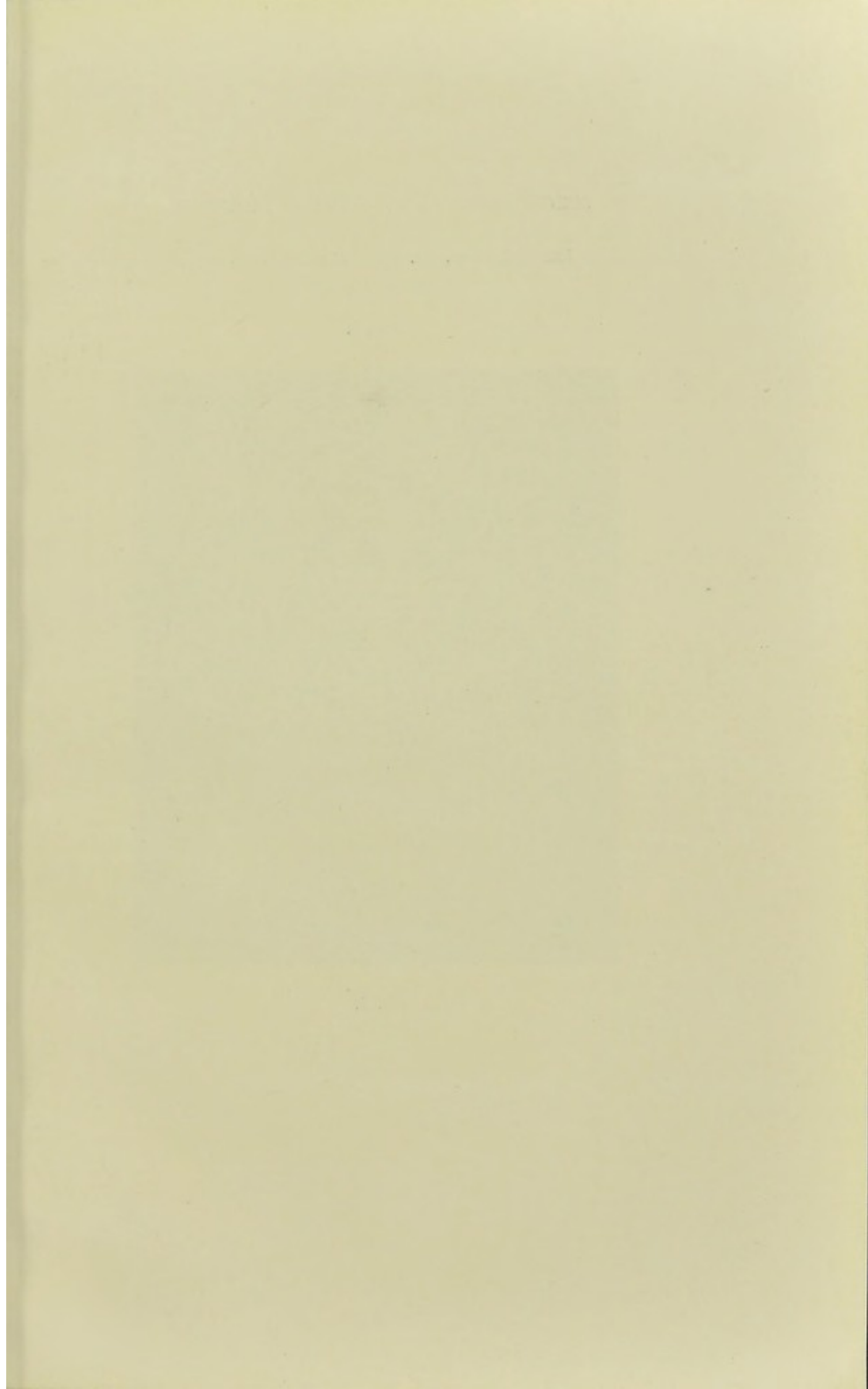
The only flaw in the family history is that a paternal aunt died of phthisis, and her own previous history is satisfactory.

History of Illness. Three years before admission a small round red spot, without pain or itching, appeared on the outer side of the right elbow, which gradually spread, and when it had reached the size of a penny it became soft, ulcerated and crusted. By and by it began to heal in the centre, while only the rounded edge was crusted. A year later a similar eruption appeared on the back of the right hand, and continued extending until the whole of the back of the hand was involved. About the same time a similar lesion was observed above the left breast, which, however, disappeared in four or five months, leaving a white scar. Six months before admission the disease attacked the inner side of the left forearm and spread rapidly, healing in the centre and extending at the edges, and a patch also made its appearance on the outer side of the right arm.

Condition on admission. She is pallid, delicate-looking, and thin, weighing 5 st. 8 lbs. The back of the right hand is covered with a thick crust, as well as the patch higher up on the arm, while those on the elbow and on the left arm are mainly crusted at the edges. They have a tendency to heal in the centre and to spread at the edges, which are violet coloured, the adjacent skin being soft and boggy to the touch. There is neither pain nor itching, but, at the healed parts, there is much destruction of tissue, and the cicatrices are of a blue-white colour.

The first injection—of $\frac{1}{4}$ c.c. of 1-1000—was given on February 27th, and she had 42 injections at intervals of about four days, the last—of 1 c.c. of pure tuberculin—on August 13th.

On dismissal, her appearance and general health left nothing to be desired. She was plump and fresh-looking. All the lesions were healed, the scar tissue remaining being soft and pliable. (Temperature chart shown.) See Figs. 6 and 7, the latter having been taken six weeks before the treatment was stopped.



SCROFULODERMA OF 3 YEARS' DURATION.

LIZZIE GORDON, aet. 12, admitted Feb. 18, 1904.

BEFORE.



FIG. 6.

TUBERCULIN INJECTIONS.

1st Injection. .25 c.c. of 1 in 1000. Old Tuberculin, Feb. 27, 1904.

Last Injection. 1 c.c. of pure Tuberculin. Old Tuberculin, Aug. 13, 1904.

Number of Injections, 42.

AFTER.



FIG. 7.



The following photographs of patients who had been affected with lupus, taken before and after tuberculin treatment, further illustrate the value of the remedy.

LUPUS VULGARIS.

MAGGIE WILSON, aet. 26, admitted Dec. 2, 1901.

Dec. 5, 1901.

BEFORE.



FIG. 8.

TUBERCULIN TREATMENT.

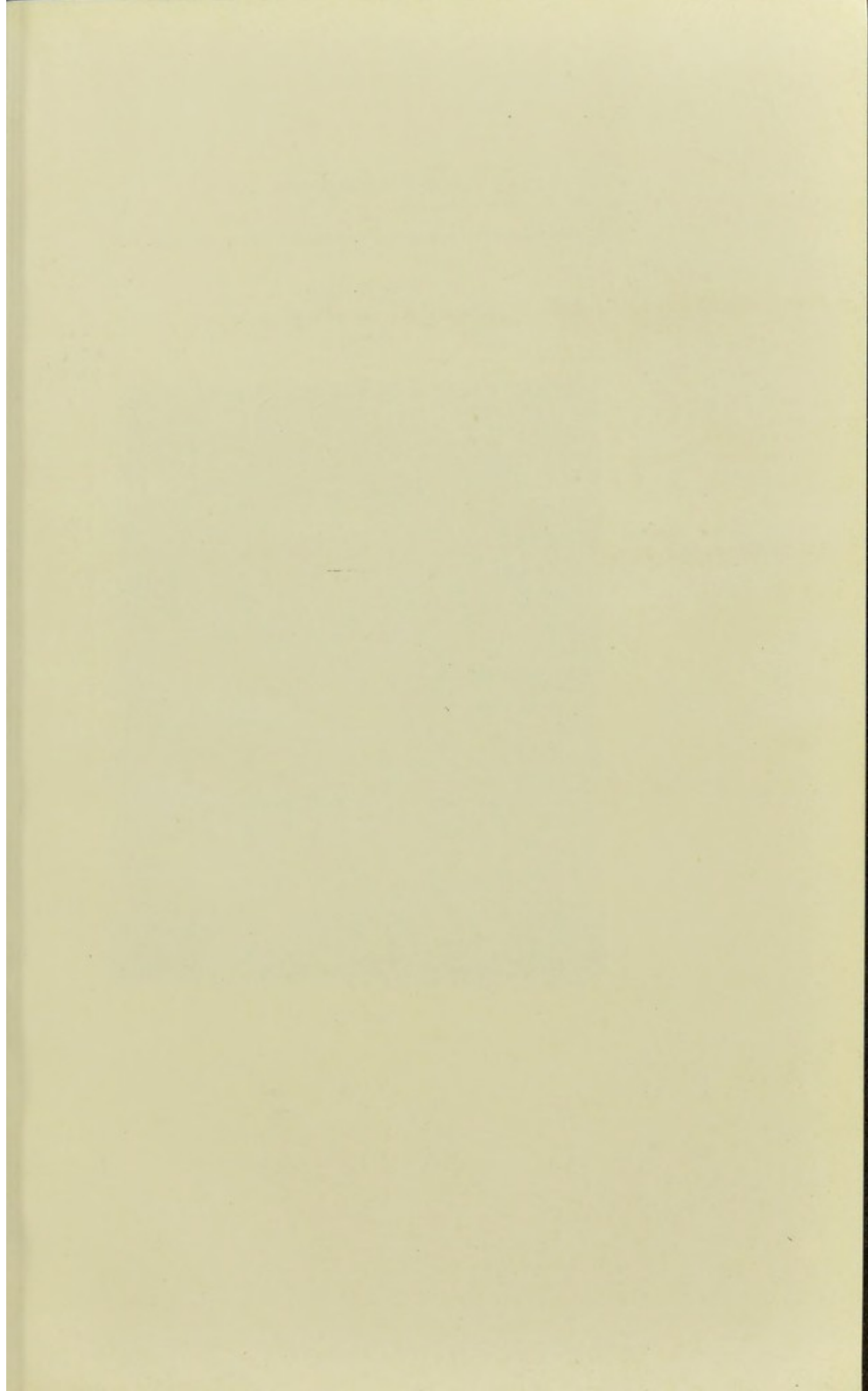
Feb. 20, 1903.

AFTER.



FIG. 9.





LUPUS VULGARIS.

GERTRUDE BILTRAN, aet. 52, admitted Feb. 23, 1902.

Feb. 26, 1902.

BEFORE.



FIG. 10.

TUBERCULIN TREATMENT.

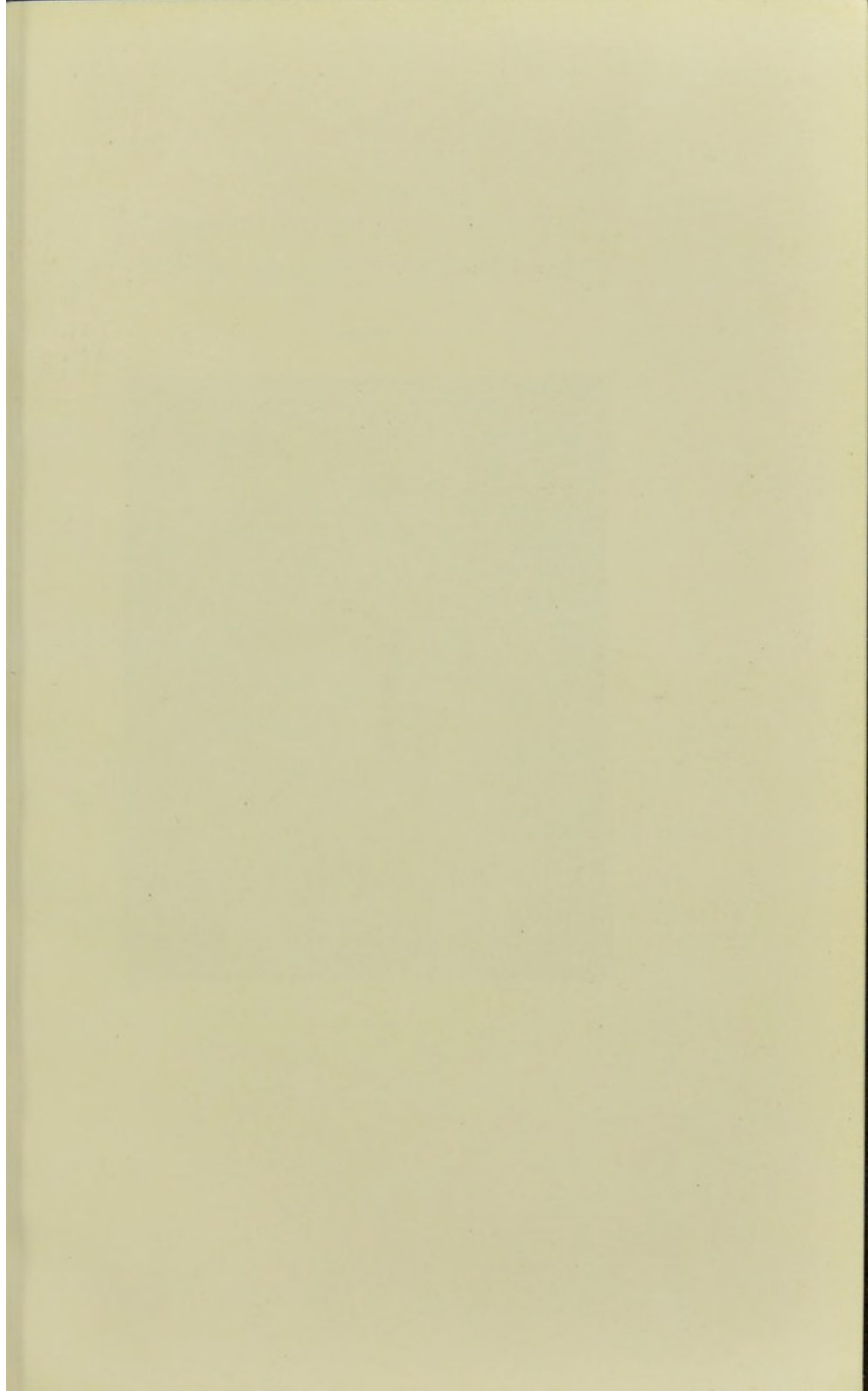
May 7, 1902.

AFTER.



FIG. II.





LUPUS VULGARIS, 5 MONTHS' DURATION.

JOSEPH HIGGINS, aet. 14, admitted Sept. 12, 1904.

BEFORE.

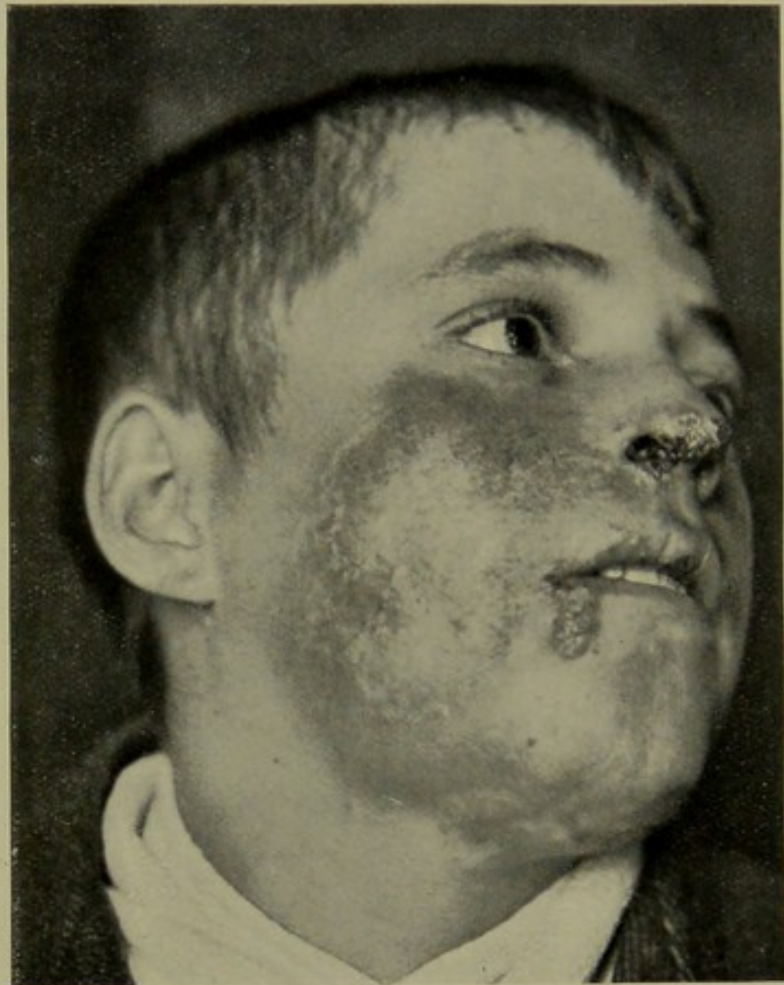


FIG. 12.

TUBERCULIN TREATMENT.

1st Injection. $\frac{1}{4}$ c.c. of 1 in 1000. Old Tuberculin, Sept. 22, 1904.

Last Injection. 1 c.c. of Pure Old Tuberculin, Feb. 17, 1905.

Number of Injections, 36.

AFTER.

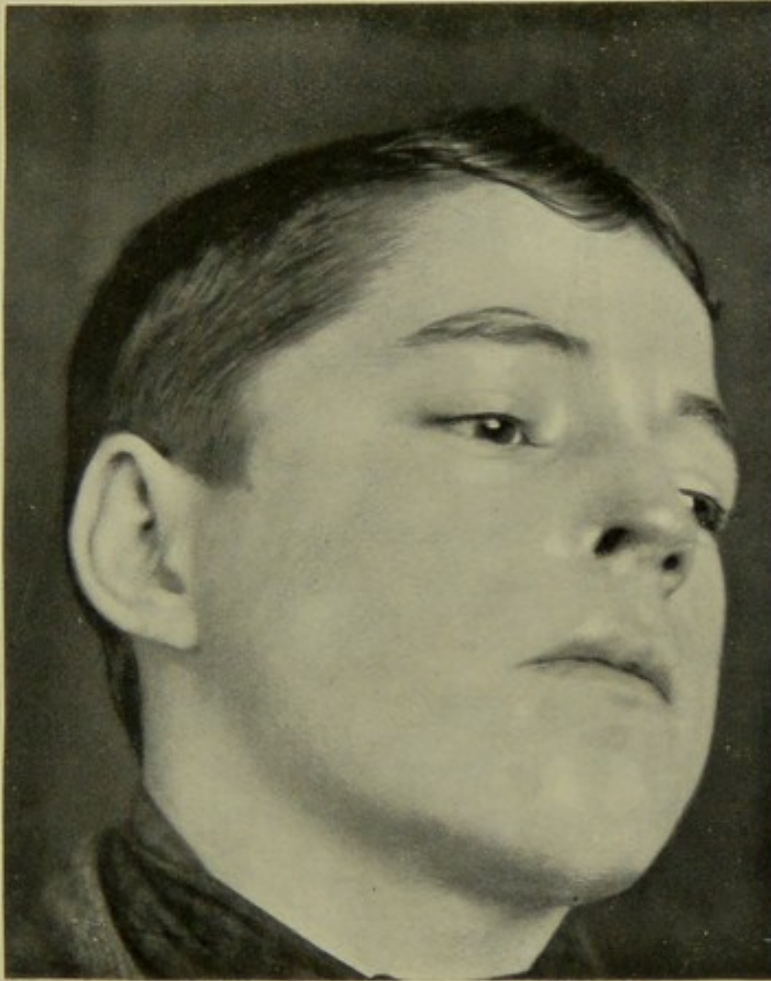


FIG. 13.



At an early period of my professional life I came to the conclusion—contrary to a very general opinion at the time—that lupus vulgaris is a manifestation of the tubercular diathesis, a view which is now generally admitted. But I also held, and still hold, that the true lupus erythematoses is also a member of the same family. I freely admit, however, that few will agree with me in this opinion. Time will not permit of my discussing this subject at present, but this I may say, that one of the arguments used against this view is that lupus erythematoses does not react to tuberculin. But is the statement correct? That some cases do not respond I grant you, but many of them do, in proof of which let me refer shortly to two cases by way of illustration.

CASE 9. A woman (Mary Smith), aet. 31, was admitted November 24th, 1896. The family history was not satisfactory: one brother died of what was supposed to be 'bronchitis,' and one from 'pleurisy,' while her father and aunt on her father's side died of consumption.

At the age of 17 she received an injury to her nose, six months after which a dusky red erythematous spot appeared upon the left ala nasi and gradually spread downwards and across the nose to the right side. Eight years afterwards a similar spot appeared on the left cheek and spread more rapidly.

Condition on admission. The eruption involves almost the entire surface of the nose, and there is a large patch on the left cheek. The eruption is erythematous, without moisture or ulceration, violet in colour, and with clearly demarcated, rounded edges.

Tuberculin treatment was commenced on 7th December: the fourth injection, on December 13th, of 1 c.c. of 1-1000, sent the temperature up to 104° , while the following one on 17th raised the temperature to 102.6° . After this the reactions became less pronounced, and after the 30th there was no rise of temperature, although the strength of the injections was steadily increased. She had 30 injections in all, the last on February 15th, 1897, of 1 c.c., full strength. On March 16th she was dismissed well, there being little scarring. (Temperature chart shown.)

CASE 10. A girl (Jane Fraser), aet. 18, entered my department on November 30th, 1896, four days after the patient whose case has just been referred to. Family and previous personal history satisfactory as far as known.

History of illness. Eruption began two years before admission as a red blush on the side of the nose which gradually spread to the other side and ultimately involved almost the whole of the face. Thereafter the ears, hands and forearms became similarly implicated, and lastly the head.

Condition on admission. She is a delicate, weakly girl, but there is no evidence of disease except on the surface. The eruption has a livid colour, with abrupt edges, circular at parts. It occupies the whole of the face except the forehead, but there is a small patch on the left parietal region. Patches of eruption are also observed on the ears, head (with loss of hair), backs of the hands, and outer aspects of the forearms. There is little tendency to desquamation.

Tuberculin treatment was commenced on December 7th, 1896, in doses similar to those in the last case. The first injection resulted in a temperature of 100° , the third of 102° , the fourth of 104° , and the fifth of 104.2° , after which the reaction steadily declined. There were 22 injections in all, the last being on February 24th, 1897. She was dismissed well on March 12th.

In all cases, in addition to tuberculin treatment, the general health was carefully attended to. Cod liver oil, or phosphorus, was administered, with generous diet, and the patients were kept as much as possible in the open air, except when there was fever as the result of the injections. In every case, and in most of the others which I have treated, the old tuberculin was used.

Allow me, in conclusion, to make a few observations in reference to the carrying out of the

tuberculin treatment, as those who have not been in the habit of using it may wish to employ it. When injected it ferrets out and attacks ALL tubercular foci, even bringing to light some of which there had been no previous suspicion. If we study its action in the case of external tuberculosis, and no doubt similar changes take place in internal parts, we observe not only constitutional reaction and fever, but also redness, swelling, and often exudation and crustation at the seat of the disease, and in this way the morbid tissue is destroyed. What we should aim at, therefore, is to produce well marked local reaction with as little fever as possible, because, while the former is essential, the latter is rather injurious than otherwise. In carrying out the treatment, the following rules should, in my opinion, be observed :

1. The initial dose of the old tuberculin, in the case of an adult, should not generally exceed $\frac{1}{2}$ c.c. of 1-1000, and sometimes it is safer to begin with $\frac{1}{4}$ c.c.

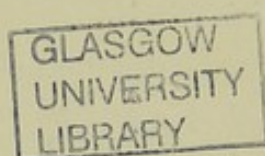
2. If a given dose yields little or no result, it is usually safer to give a second of the same strength as the last, because the latter often acts much more severely than the former, of which many illustrations are afforded by the charts which have been inspected.

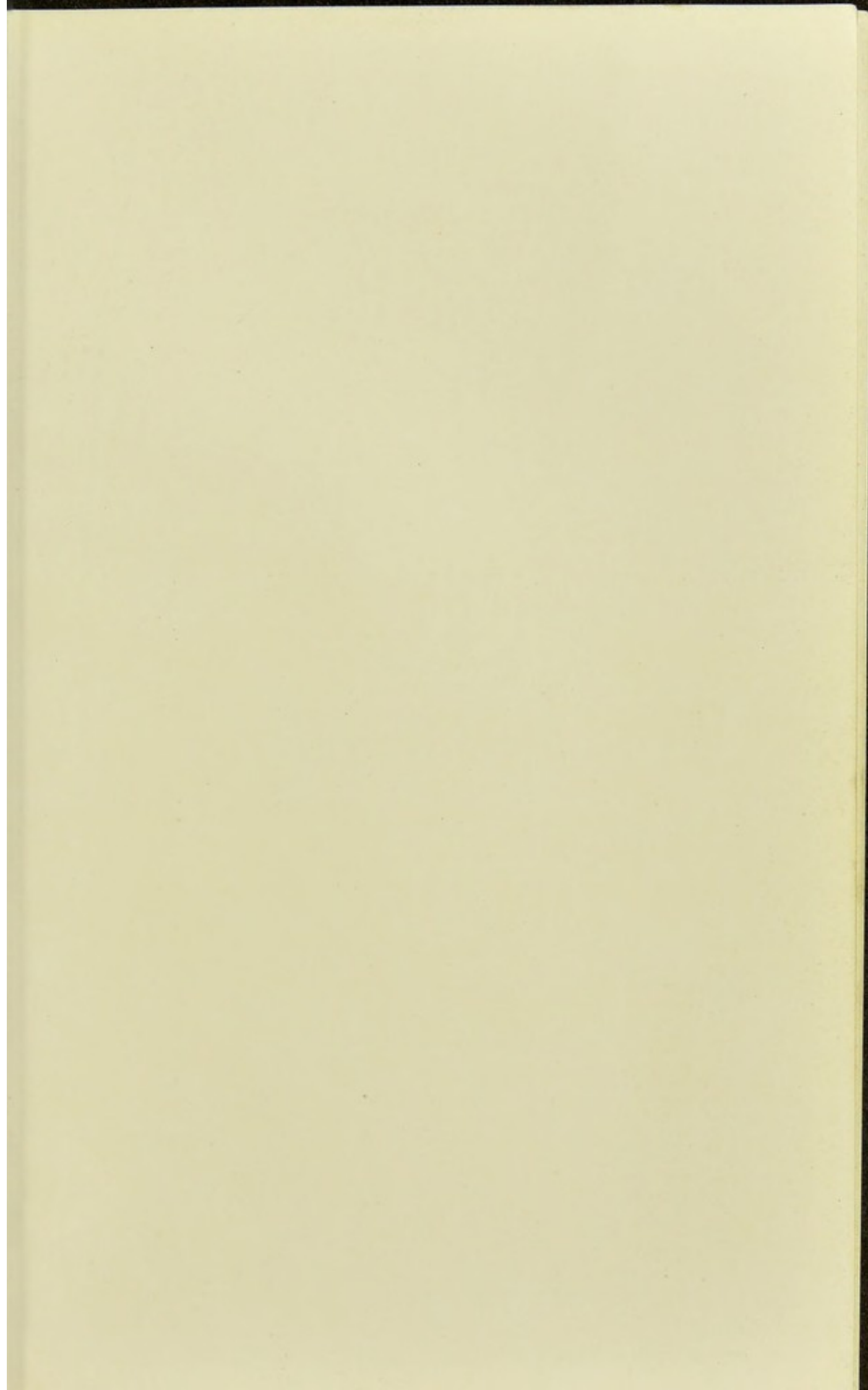
3. The more pronounced the constitutional reaction the longer should the interval be before the following one, an interval of several days of apyretic temperature at all events.

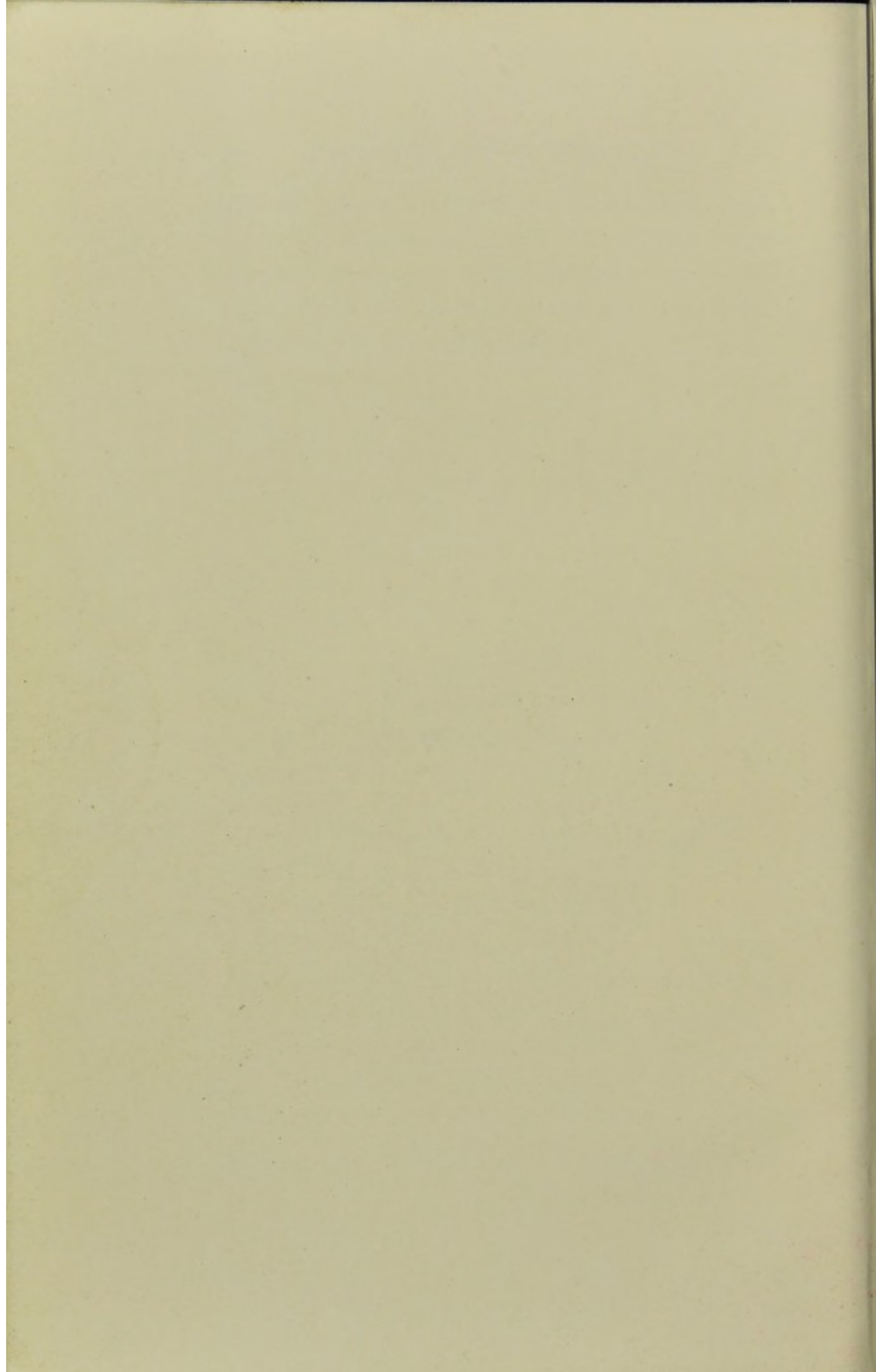
4. Much greater care must be exercised in increasing the doses at the earlier than at the later periods of the treatment, because the system gradually gets acclimatised to it, so much so indeed that, while an initial dose of $\frac{1}{2}$ c.c. of 1-1000 may raise the temperature to 103° or 104° , the final dose—say of 1 c.c. of pure tuberculin—may have no result at all.

In directing your attention to this subject, gentlemen, do not suppose that I have any wish to minimise the value of other methods of treatment, above all that of the Finsen light, which is undoubtedly a very valuable addition to our therapeutical resources. On the other hand, an extended experience has led me to the conclusion that the armamentarium of the practitioner is incomplete if, in dealing with tubercular affections, it does not include the use of tuberculin, whether regard be had to questions of diagnosis or of treatment. Besides it must never be forgotten that we are not all built upon the same mould, and that treatment, suitable and efficacious for some patients, is useless or even injurious in the case of others. And there can be no question that there are many

cases of tubercular disease for which, from their *situation* or from their *extent*, the light treatment is inapplicable, whereas neither situation nor extent contraindicate the treatment which has formed the subject of this communication.







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