rience the patient who is least benefited by dietary is the martyr to chronic dyspepsia. How often have I seen such an one, after being dieted too strictly, improve so soon as he was allowed to eat and drink whatever he fancied. Now it is the fashion that each patient should be presented with a card telling him what to eat, drink, and avoid—all are favoured with the same ticket, and, to my mind, all might with equal reason be provided with the same prescription.

SIX CASES OF LUPUS VULGARIS TREATED BY KOCH'S NEW TUBERCULIN:

A PRELIMINARY NOTE.

BY

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It may not be out of place, before proceeding to the report of the cases which form the subject of this communication, to summarise very briefly the main points in Professor Robert Koch's own account of his discovery published in the *Deutsche medicinishe Wochenschrift* of April 1st, 1897. It is there pointed out that immunity is not, as used to be believed, simple and indivisible, but is composed of at least two factors. There is, for instance, immunity to the toxin produced by the bacillus, and on the other hand there is immunity to the bacillus itself—in other words the power of destroying the bacillus. Immunisation of the former kind can be produced in the case of tetanus; of the latter in the case of cholera and typhoid fever. The ideal immunisation would be to protect the organism against all the noxious influences which pathogenic microbes are capable of exerting, and not against only one of those influences. That such an immunisation is conceivable in the case of tuberculosis is supported by the fact that in general tuberculosis there is usually a later stage when the bacilli which previously were present in swarms are so diminished in number as to be hard to find. Koch therefore tried to obtain a fluid which, injected into the body, should call bactericidal powers into play. His attempts to bring about absorption of the unchanged dead bacilli were unsuccessful owing to the production of suppuration. Treatment with decinormal caustic soda was the first step towards success, but still he was hampered by occasional suppuration, due, he believes, to the presence of unaltered bacilli. Further researches led him to adopt the following method: Dry virulent cultures are pulverised in an agate mortar. The powder is then diffused in distilled water and the fluid centrifugalised from the sediment, which is again dried and powdered and again centrifugalised, the process being repeated until no sediment forms. The fluid from the first centrifugalisation he calls T.O., and it contains all the toxins of the old tuberculin. The other quantities of fluid derived from centrifugalisation are similar in constitution, and he calls them T.R. It is this T.R., containing not the toxin but the components of the bacilli themselves, which is now in use.

Guinea-pigs were rendered immune by this fluid and then inoculated with virulent tubercle bacilli. They manifested no disturbance either locally or remotely. Guinea-pigs in which immunising treatment was incomplete suffered from tuberculous glands near the site of injection, but no tuberculosis of internal organs. Those which were inoculated first and injected afterwards became tuberculous, but showed signs of healing as immunity began to set in. In man lupus was much improved, and phthisis without great suppuration seemed to improve also.

Koch lays stress on the following points: Begin with a small dose ($\frac{1}{100}$ mg.). Raise the dose as rapidly as possible, taking care not to excite constitutional reaction. Never give a second dose until the temperature has fallen to the normal point or near it. Koch thinks immunity commences one or two weeks after the injection of the larger doses (0.5–1 mg.).

CASES.

CASE I.—H. W., aged 18½ years, readmitted to St. Mary's Hospital April 26th, 1897. History: Patient is a tall and ill-nourished boy, with an ex-

tensive lupus of the face of eleven years' duration. In 1890 he was treated for the first time actively with nitric acid twice a week for six months. In 1891 he underwent at a London hospital a course of Koch's tuberculin, which lasted ten or twelve months with intervals of rest. He derived some benefit from the treatment. Since then he had been at another hospital, where the diseased surface was scraped three times, and a portion at the right angle of the mouth was excised. Creosote and zinc chloride, and afterwards "another kind of zinc," were applied. He had no further treatment until he came to St. Mary's Hospital on September 10th, 1896. He was treated here with thyroid, and derived some benefit from it. He remembers no illness of any kind except "bad eyes" at the age of 7 years.

Present Condition.—Beyond the fact that the nutrition and development are feeble there are no signs of constitutional disease. The patient is fair haired and complexioned, with blue eyes. The face is the seat of disease over the following area: Beginning at the middle of the bridge of the nose the boundary line runs out on each side for about an inch on each cheek horizontally. It then, on the left side, follows a curve with the convexity outwards down to the angle of the mouth. On the right side there is a short curve from the upper boundary to a point an inch above the angle of the mouth, from which it runs abruptly outwards and then curves round again to the angle of the mouth, leaving a corner of almost healthy skin above the second curve. The disease then follows a curved line round the lower lip, extending about 1½ inch below it on the left side and about 1 inch on the right, enclosing the whole of the transverse fold of the chin. Practically the whole of the nasal cartilages are destroyed, and the tip of the nose is curved backwards to the face. The nasal apertures are ulcerated and the cavities are diseased as far as one can see, which is not far owing to the extensive swelling and crusting. The lips are the seat of enormous oedema and hypertrophy, and the whole surfaces of both are ulcerated. Owing to the stiffness of the lips one cannot see the gums, but the patient states that his teeth have been breaking and falling out for the last few months. He states also that the disease has only attacked the lips during the last year, and is now starting round the inside of the mouth. Otherwise his face has not altered much for three or four years. Except on the lips and in nasal apertures there is no ulceration, but rather a diffuse, bright red, swollen, and very inflamed looking surface, in which it is difficult to distinguish the lupus nodules, but on firm pressure they are found to be numerous throughout, especially on the edges. The scarring is red, swollen, and unhealthy looking, and at no part of the diseased area can one point to a quiescent piece.

On April 26th 100 mg. of the new tuberculin was injected between the shoulders.

April 27th. No rise of temperature. Slept rather badly and complains of slight headache. Pulse 90 to 104, increasing during vomiting. He is evidently very excited, remembering the old tuberculin. The face may be slightly redder, but one can see no definite reaction, no oozing or swelling. No reaction at seat of injection.

April 28th. There seems to be rather freer exudation and more scabbing of the ulcerated parts. Pulse 84. No rise of temperature; $\frac{1}{16}$ mg. injected.

April 29th. No local or temperature reaction. Feels rather ill, headache and lassitude, all very indefinite.

April 30th. The disease seems slightly flatter, but there is no change of colour and no rise of temperature. He says he can open his mouth better. $\frac{1}{16}$ mg. injected.

May 1st. No disturbance of any kind. Feels perfectly well, and says that the swelling is going down considerably in the lips.

May 2nd. No disturbance. The whole area is considerably flatter and paler, and the extent has become apparently less by the disappearance of the surrounding redness. The lips are less sore and are still shrinking. $\frac{1}{16}$ mg. injected.

May 3rd. Improvement in the lips becoming quite noticeable. No reaction of any kind.

May 4th. $\frac{1}{16}$ mg. injected.

May 5th. All the nodules at the margin are now showing umbilication, and are scaling.

May 6th. $\frac{1}{16}$ mg. injected.

May 7th. Still no disturbance. Marked improvement. Outlying nodules are fading away.

May 8th. Lower lip is getting cleaner. Upper lip is nearly all healed. He opens his mouth much wider. $\frac{1}{16}$ mg. injected.

May 10th. Sleeps badly and has pain in jaw. Now that the teeth can be seen they are found to be mostly carious. $\frac{1}{16}$ mg. injected.

May 12th. Temperature yesterday evening rose for the first time above the normal line, but only to 99.2°, and is down again this morning. He has caught a cold and his face is redder. $\frac{1}{16}$ mg. injected.

May 14th. Redness is subsiding again. Feels quite well. $\frac{1}{16}$ mg. injected.

May 15th. An hour or two after the injection yesterday morning he had a rigor, and felt very ill. Temperature rose to 103° in the evening, and his face reddened, swelled, and discharged. Temperature down again this morning.

May 16th. Redness subsiding again. Still discharging on chin a little. No tuberculin left, and so had no injection.

May 18th. Discharge stopped. Redness gone down again. (Edema gone except in lips. $\frac{1}{16}$ mg. injected.

May 23rd. Temperature rose to 99.2° on the 20th, but no other change. No tuberculin left.

May 24th. Lips still healing. The depressed lupus nodules show signs of cicatrization. $\frac{1}{16}$ mg. injected.

May 25th. Smart reaction last night. Temperature rose to 103°. Only slight local reaction with dirty brownish crusting from dried discharge over the ulcerated parts. His head aches, and the glands in the neck and at angle of the jaw are a little swollen.

May 26th. Temperature dropped suddenly last night. The lupus is paler again. He feels quite well except for sinking sensation in stomach. $\frac{1}{16}$ mg. injected.

May 27th. Severe reaction again last night. Temperature 105.3°; down to 100° this morning. He had a rigor and headache, and his breathing was rather bad. Lungs re-examined, nothing found. Lupus about the same.

May 30th. Temperature fell to normal on the evening of the 28th. He feels well. Given $\frac{1}{16}$ mg.

June 2nd. Great improvement; all ulceration healed except for a small patch on upper lip and a line on the lower one. No tuberculin left.

June 4th. $\frac{1}{16}$ mg. injected.

June 6th. Temperature rose to 103° yesterday morning; face very red. Temperature is down now, but have not given him any more. Glands in neck enlarged again.

June 9th. Face very tender yesterday, but temperature has not risen since last note. $\frac{1}{16}$ mg. injected.

June 12th. $\frac{1}{16}$ mg. Under lip nearly healed.

June 17th. $\frac{1}{16}$ mg. injected.

June 21st. $\frac{1}{16}$ mg. Improving steadily. No disturbance.

June 24th. $\frac{1}{16}$ mg.

June 28th. No tuberculin left.

July 1st. $\frac{1}{16}$ mg. Great improvement in scar of upper lip, from which several nodules have disappeared. An outlying nodule on the left cheek is much smaller.

July 2nd. Temperature rose at 6 P.M. last night (July 1st) after a rigor. He had a good deal of headache, and has still. Temperature is down again.

July 5th. Quite well again. $\frac{1}{16}$ mg. injected.

July 6th. Face redder, but feels quite well.

July 8th. $\frac{1}{16}$ mg.

CASE II.—M. G., aged 45, married, admitted into St. Mary's Hospital April 27th, 1897. *History.*—Family healthy. Personal health always good with the exception of an attack, probably of subacute rheumatism, seven years ago. At the age of 13 had an abscess in the left side of the neck, which burst and left a small red patch on the neck, which has remained unaltered ever since. The disease on the face began in December, 1893 (at the age of 42) on the centre of the tip of the nose and spread. A few months later it began also independently on the right cheek, and also spread. She went to a homoeopathic lady, who gave her globules for nearly a year, but as the disease steadily increased she came to Mr. Morris in April, 1895, and had the nose and cheek both scraped. At this time the patches on the nose and cheek were quite separate, that on the nose having already caused some loss of substance, whereas that on the cheek had not yet done so. On the cheek were two patches about $\frac{1}{2}$ inch across; that on the nose covered the entire tip. It almost entirely disappeared after the scraping, but she did not cease treatment, which was then pyrogallol ointment. The disease relapsed again immediately. Has been several times treated with the galvanocautery, and in November, 1895, had an attack of erysipelas, which, however, was not followed by any improvement. She has also apparently had some phlyctenular ulceration of the eyes.

Present condition, April 28th, 1897.—There is a patch of red, infiltrated, scaling and scabbed skin about $\frac{1}{2}$ inch long by $\frac{1}{2}$ inch wide lying at the edge of a large scar, about an inch behind and below the angle of the jaw. It is difficult to make out any true lupus nodules in the tissue. The patch on the face includes the whole of the nose from the root to the upper lip. It spreads out in somewhat bat's-wing form, leaving $\frac{1}{2}$ inch of sound skin below the right lower eyelid, and extends to $\frac{1}{2}$ inch beyond the right outer canthus, with a concave upper margin. It then has an almost vertical boundary nearly down to the level of the mouth, $\frac{1}{2}$ inch external to the angle, and then runs upwards to the ala nasi, sparing the upper lip except for one small downward process the size of a threepenny-piece, which extends nearly to the mucous membrane. On the left cheek the disease is much less extensive, the margin sweeping almost straight downwards and outwards, at an angle of 45 degrees with the nose, to within $\frac{1}{2}$ inch of the angle of the mouth, and then curving upwards to the left ala nasi, so that a lobe-shaped patch is included. The whole patch, with the exception of a small cicatrix on the right half, is prominent, thickened, and of a very bright and inflammatory red. When the skin on the cheeks was put on the stretch nodules of lupus could be seen. Ulceration is limited to scattered areas the size of a pin's head all over both cheeks and nose. The loss of tissue is slight, the ala nasi and septum being well preserved, though there is a small pit on the left ala nasi. The nasal mucosa is apparently free, or at any rate the disease does not extend continuously to it. The gums and mouth generally are healthy. There is some enlargement of the glands in front of the sternomastoid.

April 28th. Pulse 96, temperature 98.97°. $\frac{1}{16}$ mg. injected subcutaneously between shoulders.

April 29th. No change of any kind.

April 30th. $\frac{1}{16}$ mg. given.

May 2nd. $\frac{1}{16}$ mg. No change in face or constitutionally, but there is considerable pain and temporary redness and infiltration at site of injections.

May 3rd. Face was painful and burned yesterday.

May 4th. $\frac{1}{16}$ mg.

May 5th. Seems generally flatter; ulcers are healing.

May 6th. $\frac{1}{16}$ mg.

May 8th. $\frac{1}{16}$ mg. Much paler; ulcers still healing. Last injection caused a good deal of pain.

May 10th. $\frac{1}{16}$ mg. Nodules are less red; healing rapidly.

May 12th. The place on the lip (the most active previously) is flattening. The injections still give pain at site. $\frac{1}{16}$ mg.

May 14th. Slight erythematous rash over clavicles, especially right. Does not itch. $\frac{1}{16}$ mg.

May 16th. $\frac{1}{16}$ mg.

May 18th. $\frac{1}{16}$ mg. Still very red but perhaps slightly flatter.

May 23rd. $\frac{1}{16}$ mg. Great improvement. Almost all ulcers are now healed. Less red and less tender. The part on the upper lip is shrinking.

May 25th. $\frac{1}{16}$ mg. Very marked red infiltration at site of last injection.

May 26th. Face rather redder.

May 27th. $\frac{1}{16}$ mg. All ulcers now healed entirely. Affected skin seems getting soft and wrinkled.

May 30th. $\frac{1}{16}$ mg.

[illegible]

the left rather more completely than the right, and the septum is also destroyed as far as the cartilaginous portion is concerned. The whole of the surface included within the boundaries indicated is dark red, firm, raised, and infiltrated. The greater part of it is covered with scabs and scales, but there is no very definite ulceration to be seen on removal of these. Round a broad band all down the left margin and the lower part of the right margin the disease consists of large nodules the size and thickness of lentils, which are very firm to the touch. The upper lip, which is entirely included in the diseased area, is much thickened, infiltrated, and elongated, so that in profile its curve is convex. The upper gums are healthy; the lower ones are rather inflamed. The disease spreads into the nose as far as can be seen. Beyond the margins of this large patch of lupus there are a few outlying nodules, but there is very little scarring to be seen anywhere, the whole surface seeming to be a mass of lupus tissue. There is a patch the size of a shilling under the ball of the left great toe, which is fissured, scabbed, and superficially ulcerated. There are no nodules to be seen in it, and it is not very characteristic. All other organs healthy.

April 26th, 1897. Temperature being 98°, $\frac{1}{16}$ mg. of Koch's new tuberculin (T.R.) was injected into the skin of the back.

April 27th. No rise of temperature; slept well; feels quite well. No alteration in lupus; pulse 72.

April 28th. No change; $\frac{1}{16}$ mg. injected.

April 29th. No local or temperature reaction; feels quite well.

April 30th. $\frac{1}{16}$ mg. injected.

May 1st. Skin feels slightly sore and "prickly." She says also that she can breathe more freely through the nose. The nodules seem to be a little more isolated, as if the intervening redness were disappearing. Temperature last night 99.5°.

May 2nd. Patch is rather paler, and feels less stiff. $\frac{1}{16}$ mg.

May 4th. $\frac{1}{16}$ mg. injected. No further change, except a gradually increasing pallor of patch.

May 5th. She thinks it a little more swollen. No obvious change.

May 6th. $\frac{1}{16}$ mg.

May 8th. $\frac{1}{16}$ mg. Breathing is much more free through the nose. The whole patch is drier, especially on the bridge of the nose.

May 10th. $\frac{1}{16}$ mg. Enlarged glands in left axilla, which she dates from last injection on the left side. This is the first sign of anything to do with the puncture in this patient.

May 12th. $\frac{1}{16}$ mg. No obvious change.

May 14th. The whole face is now covered with dry white scabs, which came on after the last injection. She says the face "burned" a good deal after the last dose. The left canaliculus seems blocked, and her eye is painful. $\frac{1}{16}$ mg. injected.

May 16th. $\frac{1}{16}$ mg. Good deal of oedema round left eye.

May 18th. $\frac{1}{16}$ mg. Eye much improved. The canaliculus has been slit up and probed by Mr. Juler.

May 23rd. Improvement is now very marked. Many of the peripheral

nodules can be seen to be flattening down, and the scar area is standing out much whiter. $\frac{1}{16}$ mg. injected.

May 25th. $\frac{1}{16}$ mg.

May 26th. Yesterday afternoon had a rigor, and at 6 P.M. the temperature rose to 103.6°, at 8 P.M. 104.4°, at 10 P.M. 102.2°, at 2 A.M. 103.6°, at 6 A.M. 102°. She had a very bad headache, and the house-physician gave her phenacetin gr. x. The face was very red and swollen yesterday, and is still slightly so. There is no tenderness nor discharge.

May 30th. $\frac{1}{16}$ mg. Lupus paler. Patient quite well.

June 2nd. $\frac{1}{16}$ mg.

June 3rd. A good deal of swelling of the face since last injection.

June 6th. $\frac{1}{16}$ mg.

June 9th. Great deal of swelling and crusting of face since last time; skin very painful; no constitutional symptoms.

June 10th. Crusts are separating. She was told to work them off with carbolic oil; no tuberculin left.

June 12th. $\frac{1}{16}$ mg. Nearly all the crusts have fallen off, leaving a much flattened, deep-red base without any sign of ulceration.

June 17th. $\frac{1}{16}$ mg.

June 18th. Had a sharp reaction an hour and a quarter after injection. Temperature rose to 104°, with a rigor. She had a very violent headache, and felt very weak. At 10.30 P.M. the temperature was 102°, pulse 116. This morning the temperature is 99°, and she feels much better. The glands did not become enlarged, though the skin was hot and somewhat reddened. Now covered with papery scales.

June 21st. $\frac{1}{16}$ mg.

June 28th. $\frac{1}{16}$ mg. No change.

June 29th. Had slight headache and giddiness after injection, but feels quite well this morning. Temperature 98.4°. Some local reddening last night.

July 1st. Face quite pale again.

July 5th. Face swelled up on the 2nd in the afternoon (four days after injection), the lupus went very blue in colour, and the glands in the neck were swollen. Temperature rose with a rigor to 102.5° at 2 A.M. (3rd). Felt very ill and weak, and had severe headache and sore throat. Given 10 mg. to-day. After she had had injection she said that she had a tender spot on the forehead. This is hardly visible, but on close inspection there is a little oedema, and the place is shiny. It is not on the diseased part of the face, but immediately above and between the eyebrows.

July 6th. Slept well and feels well, but face has discharged a good deal, and is still somewhat red and swollen. Forehead less tender, and there is now nothing visible there. Place on foot now healed up.

CASE IV.—E. W. P., aged 17½ years. Admitted May 1st, 1897.

History.—Parents living and healthy. No consumption or skin disease in the family. At 5 years of age he had "measles," then "congestion of the lungs," then "blister-pox," and then the present skin disease began. Apparently, therefore, the lupus began before the age of 6 years, and he thinks it began on the left cheek. At 10 years of age he went as an outpatient to a country infirmary, where they afterwards took him in and scraped the lupus, and then treated it with ointments. At this time he had a patch on the left buttock, one at the back of the left knee, one on the front of the left shin, and one over the front of the right knee, besides the disease on the face. The patch on the left shin healed spontaneously, and all the other patches were scraped at the same time as the face. The disease, however, spread on the face, and about four years ago a small place started inside the nose and spread to the outside. In May, 1896, he went into a London hospital, where the disease was scraped with great benefit. For the last two or three months it has been getting rapidly worse, and it has spread to the right cheek, and the upper lip has swollen very much. Last winter he noticed a place coming on his left hand, which he attributes to pricking his hand with a thorn in the summer. The place under his chin appeared about three years ago. His health has been generally good, though he is sometimes short of breath, and he suffers with rheumatism in the left leg.

Present Condition: Face.—The left cheek now shows two areas of scar, one the size of a sixpenny piece, with a single nodule at the upper edge, lying just external to and below the left eye; the other, which lies over the malar prominence, is about the size of a five-shilling piece, and has several isolated, scabbed, and ulcerating nodules round the margin, while the centre is, for the most part, sound. The outlying nodules of this patch extend below the angle of the mouth. The nose is entirely covered with the exception of about $\frac{1}{2}$ inch below the glabella, with active lupus tissue, which is somewhat raised, dull red, and scabbed with a few outlying nodules. The tip of the nose, parts of the alae nasi and the lower part of the cartilaginous septum are gone and their position covered with blood crusts. The right cheek shows a single active, scabbed and ulcerating patch the size of a shilling and somewhat elliptical in shape; also there is an active, partially scabbed area extending continuously from the nose downwards and outwards with a convex upper margin to an inch external to the right angle of the mouth. The upper lip itself is enormously swollen, and is the seat of active disease except for about $\frac{1}{2}$ inch at the left angle. There is a scabbed spot over the inner end of the right eyebrow $\frac{1}{2}$ inch above it, and another spot about $\frac{1}{2}$ inch above the outer end of the left eyebrow. Under the chin is a single patch of cheloidal scar $\frac{1}{2}$ inches transversely and $\frac{1}{2}$ inch vertically, in the edges of which are still some active nodules. The upper gums are just becoming affected, lower healthy.

Limbs.—On the left hand, at the back of the metacarpo-phalangeal joint of the ring finger, is an irregular ulcer with a granulating base and thin blue, undermined edges looking like an ordinary tuberculous ulcer. On the middle finger in front, and extending between it and the ring finger at the metacarpo-phalangeal joints, is an ulcerating deep fissure also with undermined edges. On the right leg just above the knee on the extensor aspect is an irregular patch, bigger than the palm of the hand, composed mostly of scar but with a good many lupus nodules. He says this patch has hardly progressed since he was in the hospital. On the left buttock is a patch of similar size, scratched and irritated, and extending nearly but not quite to the anal aperture by a small and very active process of lupus tissue. At the back of the left thigh, just above the knee is a patch of scar almost completely sound, with only a few nodules at the lower edge. Above the outer malleolus is a sound scar. At the level

of the top of a shoe, over the tendo Achillis, is a swollen, violet, unhealthy-looking, almost fungating ulcer. Also there is a place, the size of half-a-crown, over the apex of left shoulder red, swollen, and crusted, being more suggestive of scrofuloderma than lupus. No signs of disease in internal organs; pulse 100.

May 1st, 1897. $\frac{1}{100}$ mg. of Koch's new tuberculin injected between the shoulders.
 May 2nd. No change or disturbance of any kind.
 May 3rd. $\frac{1}{100}$ mg.
 May 5th. $\frac{1}{100}$ mg.
 May 7th. $\frac{1}{100}$ mg. Complains of rheumatism in the joints.
 May 8th. Diseased areas looking a little cleaner. Slight central depression in some of the nodules.
 May 10th. $\frac{1}{100}$ mg.
 May 12th. $\frac{1}{100}$ mg. The redness of the face is subsiding, and the patch on the hand is healing a little.
 May 14th. $\frac{1}{100}$ mg.
 May 16th. $\frac{1}{100}$ mg. Improvement very slight.
 May 18th. $\frac{1}{100}$ mg.
 May 21st. $\frac{1}{100}$ mg.
 May 23rd. $\frac{1}{100}$ mg. Great improvement in the nose, not much to be seen otherwise.

May 25th. $\frac{1}{100}$ mg.
 May 27th. $\frac{1}{100}$ mg. Not much change.
 May 30th. $\frac{1}{100}$ mg.
 June 2nd. $\frac{1}{100}$ mg. The nodules are flatter. Patient says he notices improvement every time he dresses his face. Only boracic acid ointment is being used. The ulcer on the hand is healthier looking.
 June 4th. Temperature rose to 104° at 8 P.M. on the 2nd. He had no rigor, but felt hot and cold. Head ached severely, and his throat became sore. There is an eruption of pin's head vesicles over fauces and soft palate now. Patient also had pricking sensations wandering about over the skin.
 June 6th. Quite well again now. Face a good deal improved. $\frac{1}{100}$ mg.
 June 9th. No reaction since last injection. Face much cleaner, as many of the scabs have fallen off. The lip is healing, but the swelling remains. There is a remarkable change in the ulcers on the hand, which have healed entirely. $\frac{1}{100}$ mg.
 June 12th. $\frac{1}{100}$ mg. The fissure in the fingers is now completely closed. Forehead cicatrizing and the lip is covered with florid granulations.
 June 17th. $\frac{1}{100}$ mg.
 June 21st. $\frac{1}{100}$ mg. Some leaked away from site of injection. Left side of the face is a good deal flatter.
 June 24th. $\frac{1}{100}$ mg.
 June 28th. Tuberculin ran short.
 July 1st. $\frac{1}{100}$ mg. Face generally less scaly and improving, but swelling of upper lip does not go down.
 July 5th. $\frac{1}{100}$ mg.
 July 6th. No rise of temperature, but he complains of headache and pain under the heart.
 July 8th. $\frac{1}{100}$ mg. Some diminution in size of lip.
 CASE V.—A. K., married, aged 37, admitted into St. Mary's Hospital, May 3rd, 1897.
History.—Some doubtful consumptive history on mother's side. At the age of 15 (1875) she had a large swelling appear over the left elbow, which was opened twice and discharged a lot of fluid. After this some patches developed on the elbow like that present on the arm now, and these patches spread. About the same time patches the size of peas developed on the right cheek, left temple, and on outer side of right arm, which all increased in size. She was at first treated with internal medicines, and then, in 1878, she went to London to a surgeon who treated all the patches with nitrate of silver, with great benefit. The patch on the temple was thus cured, and most of the patches round the elbow were also cured. At one London hospital the disease was scraped three times, and thus greatly improved. She then left it alone for two or three years, when she went to another hospital, and was treated with salicylic acid and lysol plasters, which took down the swelling a good deal, and she afterwards was treated with Koch's tuberculin. She never showed any local reaction to tuberculin, and never any fever, but she used to feel rather ill. For the last two years she has been treated by Mr. Morris, and has been scraped two or three times, and cauterized with some improvement.
Present Condition.—Face: There is a large patch of lupus situated on the right side of the face. The boundaries are—posteriorly, immediately behind the ear, and involving almost the whole of the edge of the pinna, which is swollen to about three times its normal thickness; above, a nearly straight line from the upper part of the ear to the outer canthus of the right eye, and along the lower margin of the orbit nearly to the inner angle of the eye. Here a small and actively growing process, which has been under observation for some time, is threatening to attack the lid. From this point the boundary follows the naso-labial groove; leaving the nose quite free, and runs down to a point $\frac{1}{2}$ inch external to the angle of the mouth, and thence to the edge of the jaw-bone. Below the jaw it runs forward again towards the middle line, and curving round again runs backwards beneath the jaw to about $\frac{1}{2}$ inch behind the lobe of the ear. All this surface is more or less composed of scar tissue, with scarcely any redness, but is plentifully besprinkled all over with typical yellowish lupus nodules, which are more prominent and thickly set at the edges. There is free scaling, but no ulceration or scabbing. At the points of greatest activity, the inner angle of the right eye, behind the vertical ramus of the jaw and the ear, the nodules stand prominently forth to the size of a split pea.
Right Shoulder.—On the front and outer surface of the right upper arm, $\frac{1}{2}$ inches above the olecranon, there is an ovoid patch $\frac{3}{4}$ inches long by $\frac{3}{4}$ inches wide. It is freely scaling, and consists mostly of scar tissue, but still shows signs of activity by numerous nodules at the margin and scattered throughout the scar. The lower and outer margin is markedly hypertrophic. The patient says this patch is very itchy.
Left Arm.—The extensor surface of the left forearm is the seat of numerous more or less circular depressed white scars, and there is one patch on the inner side about the size of the bowl of a teaspoon, which still shows active lupus. It is thickened, painful, and somewhat irregular in shape. No signs of disease in internal organs. Health good.
 May 3rd, 1897. $\frac{1}{100}$ mg. of Koch's new tuberculin injected between shoulders.
 May 5th. No local or constitutional disturbance. $\frac{1}{100}$ mg.
 May 7th. She thinks it is flatter. No obvious difference. $\frac{1}{100}$ mg.
 May 10th. $\frac{1}{100}$ mg.
 May 12th. $\frac{1}{100}$ mg. Some flattening of the active part by the root of the nose.
 May 14th. $\frac{1}{100}$ mg.
 May 16th. $\frac{1}{100}$ mg. No disturbance of any kind.
 May 19th. $\frac{1}{100}$ mg. Nodules under eye and near ala nasi shrinking.
 May 21st. $\frac{1}{100}$ mg.
 May 23rd. The base is somewhat reddened, but not threatening looking. The nodules have mostly sunk below the surface now, and the improvement in this way is especially marked at the advancing edge by the nose.
 May 25th. $\frac{1}{100}$ mg. The patch on the arm is now much flatter.
 May 27th. $\frac{1}{100}$ mg.
 May 30th. $\frac{1}{100}$ mg. No reaction, but felt very sleepy and tired.
 June 2nd. $\frac{1}{100}$ mg.
 June 6th. The last injection caused a good deal of swelling, and she felt very hot but not ill. No difference to-day. $\frac{1}{100}$ mg.
 June 10th. Marked contraction taking place both in face and arm. $\frac{1}{100}$ mg.

June 14th. 7 mg.
 June 17th. 8 mg. Swelling going down in ear a little.
 June 21st. Felt weak and sleepy after last injection, but no swelling or feverishness. 8½ mg.
 June 28th. Not enough tuberculin.
 July 1st. Nothing fresh to note, but steady and gradual improvement. 9 mg.

July 8th. 10 mg.
 CASE VI.—E. S., aged 24, admitted into St. Mary's Hospital May 3rd, 1897.

History.—No consumption or skin disease in the family. Patient has had only the usual childish complaints. The present disease began at the age of 8 or 9 (1881) with three patches—on the left malar bone, under left side of chin, and in front of the left ear. Apparently it started as an abscess, which was opened. He was then treated with ointments and had it burned with some liquid twice a week. Up to this time it had not spread, but as it began to do so he was taken to a hospital, where it was scraped twice, but without much benefit, and it continued to spread. Then in 1885 (?) he came here and was scraped and cauterised frequently. In 1891 he underwent treatment with Koch's tuberculin. At this time the disease was as extensive as at present and very swollen, but never ulcerated. He never reacted to tuberculin, but it improved his face immensely, and it only began to relapse again a few months ago. Since Koch's treatment was employed he has been treated with pyrogallol ointment.

Present Condition.—He has a roughly butterfly-shaped patch of lupus on the face, including the whole nose and upper lip, and having a greater extent on the right side of the face than on the left. On the right side it extends from the root of the nose, along the lower edge of the orbit, up to the external angle of the eye; then, with a convex outward curve, it sweeps downwards to below the jawbone, rises forwards, and encircling the angle of the mouth, merges into that of the lip. On the left side there is a lobe-shaped, obliquely-lying patch, extending down from the nose to 1 inch outside the angle of the mouth and a little below it. The septum is left, but the nostrils are almost closed by cicatricial contraction, and the alae nasi are mostly destroyed. By far the greater part of this area is a reddish, shining scar, but, especially on the right side, there are patches of active lupus round the margin. The centre is for the most part clear, but here and there there are nodules in the scar. The right side generally is more active and the nose on that side is less sound. There is still one active nodule to be seen on the right upper eyelid. The gums are sound. No sign of disease in internal organs. Health good.

May 4th, 1897. 7½ mg. Koch's new tuberculin injected between shoulders.

May 6th. 1½ mg. No disturbance of any kind.

May 8th. 7½ mg.

May 10th. 7½ mg. He thinks it is better. No obvious change.

May 12th. 7½ mg.

May 14th. 10 mg. Left hospital yesterday to attend regularly for treatment.

May 16th. ½ mg. No disturbance of any kind. No obvious local change.

May 19th. ½ mg.

May 21st. Wednesday (19th) evening felt ill. Had no shivering. Went to bed but could not sleep. Very weak all Thursday (20th). Felt feverish. Temperature normal to-day. Some vesication of the lupus nodules.

May 23rd. Did not appear.

May 24th. 1 mg. Lupus generally paler. More active parts, especially on right side, are flattening.

May 26th. 1½ mg. Felt a little cold and shivery after last injection.

May 30th. 2 mg. Felt a slight lump under right armpit after last injections. Injections always make him feel a little ill now. Lupus seems clearer, but it is difficult to see in the hard scar.

June 2nd. 3 mg.

June 10th. 3½ mg. Had a severe local reaction after last dose. His face swelled up, so that he was unable to go out. Swelling gone now, and face is improved. Feels quite well.

June 14th. Nose and lip swelled slightly after last injection, but nothing else. Nodule on right eyelid has disappeared. 4 mg.

June 17th. Had a smart reaction five hours after injection. His face swelled up, and he was unable to rise next morning. Quite well again now. 4½ mg.

June 21st. Only felt a trifle unwell. Much of the active lupus has now disappeared. Only 2½ mg., as tuberculin ran short.

June 24th. Quite well in himself. 5 mg.

June 28th. No disturbance. Could only give him 5 mg., as tuberculin ran short.

July 5th. No trouble after last injection. Face contracting slowly. 6 mg.

July 8th. Only the slightest malaise after last injection. 7 mg.

REMARKS.

Koch, in his paper referring to the results obtained by the use of his new tuberculin, expressly declines to speak of any case as cured, "although in a number of observations one would be warranted in speaking of a cure in the current sense of the word." He prefers to say that in the cases of lupus, as well of other forms of tuberculosis, treated with T. R., he has "invariably seen a considerable improvement take place." The good effects of the new tuberculin on lupus thus cautiously referred to by Koch are fully confirmed by our experience. The cases above related speak for themselves. The improvement in one or two, and those the worst, of them is so remarkable, that the necessarily bald clinical record fails to convey an adequate idea of the change that has been wrought in the appearance of the affected parts; to be fully appreciated it must be seen.

Summarising the effects of the new tuberculin in the order in which they were observed, there was: 1. A diminution of the surrounding halo of redness in those cases in which this had been present to a marked degree before the commencement of the treatment; in cases in which there were simply yellowish brown nodules in a white scar, the injections produced no visible effect at this stage. 2. The next change noticed was a slight depression in the centre of the nodules, leading to wrinkling, and later to desquamation of the cuticle. Then there occurred, 3, steady healing of all ulcerated surfaces; and, 4, slow subsidence of the previously permanent oedema of the lips, ears, etc. In two cases (I and VI) actual disappearance of the characteristic lupus nodules was observed, in the former on the upper lip, in the latter on the eyelid. In other cases there was distinct shrinking of nodules with diminution in the scaling of the surface. Another marked effect of the injections was the softening and flattening of pre-existing scars. In no case has there been the slightest sign of progress in the disease since the treatment was begun. This fact is especially noteworthy in regard to Case II, which had previously shown a very marked and ever-increasing tendency to recurrence and extension under so many forms of treatment.

As regards the immediate effect of the injections, there is at first little or no reaction, although in some cases a feeling of heaviness and drowsiness is complained of. When the larger doses are reached, there is, as may be seen from the temperature charts, considerable febrile disturbance, sometimes with headache and pains in the limbs, and even some trouble in breathing, and a general feeling of depression with broken sleep. Locally the erythema is generally increased, and the whole affected area, including even old-standing cicatricial tissue, is swollen. In two of our cases, however, in which there were sound scars, probably from previous lupus, no reaction was observed in the scar. The phenomena of reaction quickly disappear, and then the patients without exception describe themselves as feeling better than they did before. As showing how slight comparatively is the general reaction following the use of the new tuberculin, it may be pointed out that in Cases V and VI the patients are going about, and only come to the hospital from time to time to have the treatment applied. We do not, however, think this course advisable as a rule.

On the whole we are able to state that the local effects of the new tuberculin in the cases of lupus vulgaris in which we have tried it have been uniformly good, in some cases distinctly brilliant. The constitutional disturbance has in no case been severe, and has always been of a very transitory character. As far as can be judged at present, the injections do no harm whatever.

We think it well, however, to repeat most emphatically that we do not claim the results here reported as "cures." We have recorded as faithfully as we could what we have seen in a small number of cases; time alone can show whether the great improvement that has taken place in the appearances of the disease in these cases will be lasting. The present must be taken strictly as only a preliminary note written in compliance with a request from the Editor of the BRITISH MEDICAL JOURNAL. A full report of the cases, with their subsequent history in detail, will be given to the profession later.

We may say in conclusion that, without committing ourselves to a definite judgment as to the value of this new remedy, we should have no hesitation in recommending it in any case of lupus vulgaris in which the constitution is not hopelessly broken down. In recommending it, we should be careful to warn the patient that he must not look for any miraculous effect. It is clear that a sufficient length of time must be allowed for the operation of the remedy if it is to be effectual; how long that may be it is impossible to say at present. As regards the production of the immunity aimed at by Koch, that is obviously a very difficult matter to test in the human subject.

Finally, we may be allowed to express the hope that the new tuberculin may soon be made more easy to procure, and less costly than it is at present.

THE Drapers' Company have sent a donation of £100 to the funds of the London Hospital.