RECORD OF CASES
TREATED IN THE
LOCK HOSPITAL BY SYPHILISATION.

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THIS paper contains a brief report of the cases treated in the Lock Hospital by syphilisation, or the repeated inoculation of syphilitic matter in persons already the subjects of constitutional disease.

This peculiar method of treatment was originated by M. Auzias-Turenne about 1845, but met with so much ridicule and opposition from the French Academy of Medicine, that, except by the late M. Melchior Robert of Marseilles, it has scarcely again been tested in France. M. Sperino adopted it for a time in the venereal hospital of Turin, and he has published the result of a considerable number of cases submitted to this treatment, attended by varying success.

It remained, however, for Professor Böeck, of Christiania, to develop the system on a large scale, and a publication

by him in 1862, with another more recently by Dr. Bidenkap, giving the results of between 300 and 400 cases treated by syphilisation, has again directed attention to, and excited an interest in, this almost forgotten subject.

The great success claimed by these experimenters has popularised the treatment in their own country, and has created a desire in the profession generally to test the accuracy of their observations, and to watch the striking pathological phenomena which attend this novel method of treating constitutional syphilis.

The practice of syphilisation has evoked extreme hostility in England, and it had never been thoroughly carried out until the present series of cases was commenced under the superintendence of Dr. Böeck himself.

That gentleman, being on a professional visit to this country, most kindly acceded to the request of the Committee—then sitting to inquire into the treatment and prevention of venereal diseases in the Army and Navy—to state the result of his great experience; and he most generously, and at great personal sacrifice, offered to return to England for three months to initiate his system of treatment by syphilisation, provided he could obtain sufficient hospital accommodation for the purpose. At the request of the above Committee, and at the suggestion of the authors of this paper, the governors of the Lock Hospital very liberally placed some beds at his disposal, and the practice was commenced in September 1865, and continued under Dr. Böeck's supervision until the end of that year. After his departure from this country, the treatment of the cases begun by him was concluded by the authors, and some others have since been undertaken by them and carried through.

The opinion of Dr. Böeck with regard to the therapeutical action of syphilisation does not accord with that of MM. Auzias-Turenne and Sperino, who believe that the syphilitic poison is absorbed, and that the repeated inoculation of it produces a *saturation* of the system with syphilis, so that an immunity to the effects of the virus is at length acquired. Dr. Böeck considers that the introduction of the syphilitic

virus into the organism creates a *diathesis*, and is followed by a certain train of symptoms which succeed to each other with great regularity, but are usually prolonged over a considerable period of time. The syphilitic diathesis, when once established, cannot, he thinks, be increased or intensified by the further inoculation of virulent matter, but the continued insertion of this, by stimulating the existing disease, enables it to pass through its regular course, and therefore to complete the series of phenomena which follow the infection of the system by syphilis, in a far shorter time than if left to itself, or if subjected to any other method of treatment. Relapses and the occurrence of the so-called tertiary disease are therefore, he states, rarely found after this treatment; whilst the continued introduction of syphilitic matter into the system destroys, in a varying period of time, the receptivity of the patient, and ultimately produces a local as well as a general immunity to the disease.

This condition of immunity to the local action of the virus is gradually lost after the inoculations are discontinued; but the general immunity is very constant, and lasts as long as the duration of the diathesis—frequently throughout the life of the patient.

The method pursued by Dr. Böeck is as follows:—At the commencement three punctures are made on each side of the chest, and matter is inserted, derived either from a person who has a primary syphilitic ulcer, or from the artificial sores of a patient who is undergoing syphilisation.

After an interval of three days, if the punctures have developed pustules, three other inoculations are made from them in the same region of the body, and this process is repeated as long as pustules are produced; the inoculations being made at intervals of three days and the matter being always taken from the last formed pustules. When, at length, these are not inoculable fresh matter is employed, and the above process is repeated, until a positive result can no longer be obtained on the trunk. The same practice is then commenced on the arms, and continued there until the punctures fail, when a similar process is pursued on the thighs

until no more pustules result, and a condition of immunity more or less perfect is arrived at. In the ordinary run of cases this occurs in from three to four months.

Professor Böeck employs syphilisation for patients of all ages, even for very young infants who are the subjects of hereditary disease ; in these latter, however, he has frequently found that the inoculations will not take : this often happens also in persons with constitutional syphilis who are suffering, at the same time, from some acute or debilitating disease. He has occasionally observed this temporary loss of inoculability when a syphilitic eruption has been ushered in with severe febrile disturbance, or has been preceded by a long-continued cachexia. After the disease has become more chronic, or the health has improved, the inoculations succeed and produce their curative effect, but these patients are more liable to relapses than those in whom the treatment has not been interrupted or delayed. If phagedæna occur, or should the health become impaired by excessive suppuration from the artificial ulcers, he does not discontinue the treatment, as he has found that the best remedy for such complications is to persevere with the inoculations. When the constitutional disease has existed for a length of time, the treatment by syphilisation is much prolonged, and relapses are more frequent : this is especially the case when the disease has reached its tertiary form, and Dr. Böeck recommends the use of iodide of potassium concurrently with inoculation.

A curious fact connected with syphilisation is, that not unfrequently a number of successive inoculations, which have remained without effect for many days and have been thought to be abortive, will suddenly and simultaneously develop pustules : this is supposed to depend upon some peculiar state of the system which has temporarily interfered with the receptivity of the patient.

Although Dr. Böeck considers that the two varieties of chancre are produced by the same virus, and that the result produced by their inoculation is essentially the same, he prefers the matter from an indurated sore for the purpose of

sypphilisation, as he has found that patients pass through the treatment and attain immunity more rapidly and satisfactorily when this is used, than when the secretion of a soft sore is inoculated.

According to the views of Dr. Böeck the administration of mercury interrupts and retards the natural course of syphilitic disease, and he believes that in like manner it interferes with its treatment by continued inoculation, diminishing therefore the efficacy of sypphilisation as a curative system. He was anxious in consequence, while in this country, to confine himself as much as possible to cases uncomplicated by a mercurial treatment, and this accounts in a great measure for the small number of patients treated by him at the Lock Hospital, for the great majority of those admitted with secondary disease are found to have been already subjected to a more or less complete mercurial course, either for the primary or secondary affection. Nearly all the cases admitted during the three months of Dr. Böeck's residence in England, which he considered suitable, were subjected to his treatment. Altogether, twenty-seven cases were treated in this manner; they were adults suffering from unmistakable constitutional syphilis, and in some the primary sore was still unhealed. In each instance, after full explanation, the sanction of the patient was obtained before commencing the inoculations, and they cheerfully and readily submitted to them.

In consequence of the differences observed in the progress of those patients who had previously been treated with mercury, and of the others who had not taken this drug, we have thought it better to divide the cases into two classes.

I. Those in which the disease was recent, and in which no mercury had been given.

II. Those which had been treated with mercury, and had suffered from one or more relapses after such treatment; amongst these was a very severe case of tertiary disease.

The first class comprises twenty-two, the second five cases.

We have endeavoured to record them as briefly as

possible, and have dwelt only upon such details as appeared to us necessary for the proper comprehension of the most important points involved.

We have stated in each the nature of the symptoms for which the treatment was undertaken; the progress of the inoculations; the effect of the treatment upon the symptoms; and the final result.

The inoculations practised on each patient were recorded by means of a diagram, three of which, illustrating cases 2, 8, and 9, are printed to show the method adopted; in addition to these a written diary of the patients was kept.

CASES.

CLASS I.—*Cases which had not been treated with Mercury.*

CASE 1.—Female, C. J—, æt. 18, admitted August 17th, 1865, discharged February 20th, 1866.

Symptoms.—Incipient mucous tubercles on labia; squamous eruption on head, face, and trunk, with roseola on limbs, of five weeks' duration; multiple glandular enlargement in both groins. No previous treatment.

Syphilisation.—September 5th.—After two failures with matter from hard sores, the inoculations were commenced successfully with matter obtained from multiple soft sores in a male out-patient (same as in Cases 2 and 3). From these the inoculations were continued through seventeen successive generations on each side of the chest till October 23rd, when the pustules became too small and imperfect to reinoculate from.

October 26th.—Inoculations were made on the arms with matter originating in an indurated sore from a patient undergoing syphilisation, which was sent from Norway by Dr. Bidentkap, and it went through five generations. After this, matter was employed on the arms and thighs (chiefly from soft sores), and in one instance eleven generations were produced on the thighs, but for the most part they terminated at the second or third.

After the 27th December only very imperfect pustules were developed, and these never contained reinoculable matter. Immunity, therefore, may be said to have been attained in three months and twenty-two days.

Progress.—There was no improvement in the symptoms during the first two months of the treatment, but rather the contrary—fresh spots of eruption appeared, and the mucous tubercles on the labia increased in size. During the third month an amendment was apparent, and, by the time the inoculations would no longer take, the eruption had disappeared, as well as the mucous tubercles.

Result.—Left the hospital February 20th, 1866,—five months and fifteen days from the commencement of the treatment, and has not since been heard of. 281 inoculations were made; 157 of these were positive, 124 negative. The longest series of pustules obtained from the same matter was seventeen (soft).

CASE 2.—Female, M. A. B—, æt. 21, admitted August 17th, 1865, discharged February 13th, 1866.

Symptoms.—Indurated sore at inferior commissure, of six weeks' duration; eruption of roseola on trunk and upper extremities; multiple glandular enlargement in both groins and both posterior cervical regions. No previous treatment.

Syphilisation.—After two failures with matter from hard sores the inoculations were commenced successfully on September 5th, with matter from multiple soft sores in a male out-patient (the same as Cases 1 and 3), which went through fifteen generations on the chest and arms till October 20th. After this, matter from different sources, hard and soft, was inoculated through a gradually diminishing series on the trunk, arms, and thighs till December 13th, after which date no pustules were obtained which furnished reinoculable matter. Immunity therefore may be said to have been reached in three months and eight days.

Progress.—The local sore rapidly healed; the eruption was stationary for the first two months, but it had almost disappeared by the time the inoculations would no longer take.

Result.—She left the hospital for the Lock Asylum quite well, February 13th, 1866, five months and thirteen days from the commencement of the treatment. Her detention so long in the hospital was occasioned by the tediousness in healing of some of the inoculated sores on the lower extremities. She remained in the asylum in good health till March 1867, when she went to a situation. 276 inoculations were made; 155 of these were positive, 121 negative. The longest series of pustules obtained from the same matter was fifteen (soft).

This patient was inoculated by Mr. Lee on December 22nd to test her immunity. A small pustule was produced, but it was not reinoculable. (See Diagram I.)

CASE 3.—Female, R. B—, æt. 19, admitted August 17th, 1865, discharged January 30th, 1866.

Symptoms.—Mucous tubercles on labia; squamous eruption on trunk, neck, and arms, of recent date; glandular enlargement in both groins, and in both posterior cervical regions. No previous treatment.

Syphilisation.—September 5th.—The inoculations were commenced with matter from the same source as in Cases 1 and 2, and went through thirteen generations till October 11th. Matter from various sources, chiefly soft, was then inoculated on the arms and thighs till December 19th, but a series of five was the longest obtained.

After this date no pustules were produced which secreted reinoculable matter. She was therefore considered, by Dr. Böeck, to have attained immunity.

This patient was also inoculated by Mr. Lee on December 22nd to test the immunity, and a small pustule was produced, which proved to be reinoculable once, but failed to reach a third series. She was inoculated four times subsequently with other matter, but no reinoculable pustules were obtained. An approximate immunity may therefore be said to have been established in about three and a half months.

Progress.—By the time the inoculations were concluded all her venereal symptoms had disappeared.

Result.—She left the hospital quite well January 30th,

*Case 2.—Treatment Commenced 30th Sep^r 1865.
terminated 17th Jan^y 1866.*

1866, five months from the commencement of the treatment, and has not since been heard of. 279 inoculations were made; 157 of these were positive, 122 negative. The longest series obtained from the same matter was thirteen (soft).

CASE 4.—Female, E. E—, æt. 21, admitted July 25th, 1865; discharged June 21st, 1866.

History and Symptoms.—This patient was admitted with a large sloughing sore on the left labium, which extended into the thigh and groin, and was of so severe a character that her life was for some time in danger.

When the sloughing had ceased and the ulcer had nearly healed, a well-marked secondary eruption appeared on her chest and back, accompanied with superficial ulceration of the tonsils; there was also enlargement of the inguinal and posterior cervical lymphatic glands.

Syphilisation.—September 21st.—The inoculations were commenced on the chest with matter from one of the inoculated sores in Case 2 (soft), which produced eight generations of good pustules, and was followed by matter from Case 23 (soft), which went through thirteen generations, terminating November 25th. After this date matter from various sources, hard and soft, was used on the arms and thighs till December 27th, when sloughing recommenced in the cicatrix of the sore for which she was originally admitted; it was therefore thought better to discontinue the treatment, especially as one of the neighbouring inoculations had taken on the same action.

The sloughing in the groin again spread to an alarming extent, and continued for some weeks, when at length it ceased and the wound slowly healed. The inoculated sore on the thigh, above referred to, sloughed till it attained a diameter of about an inch and a half, but none of the other inoculations were affected.

Progress and Result.—The patient recovered very slowly from the second attack of sloughing, and was unable to leave the hospital till June 26th, nine months and five days from the commencement of the treatment. By that time all her

secondary symptoms had disappeared, the wound in the groin had healed, but the sore on the thigh, which had sloughed, was still covered with a scab about the size of a shilling.

She has been under observation to this date, April 1867, and has remained perfectly well. 259 inoculations were made; 181 of these were positive, 78 negative. The longest series from the same matter was twelve (soft).

The treatment by inoculation lasted three months and six days, but was interrupted before immunity was reached.

CASE 5.—Female, L. M—, æt. 25, admitted September 14th, 1865; discharged July 31st, 1866.

Symptoms.—Squamous eruption on face, with roseola on body and limbs, of recent date; tubercular patches on tonsils; indurated chancre at inferior commissure; indurated lymphatic glands in inguinal and posterior cervical regions. Has had no treatment for this disease, but says she took mercury for a liver complaint some years ago.

Syphilisation.—September 23rd.—The inoculations were commenced on the chest with matter from Case 2 (soft), which went through sixteen generations, and failed on November 10th; this was followed with matter from Case 8 (soft), which ceased to take at the fifth generation, November 25th. She was inoculated on the arms with matter from both hard and soft sores from October 23rd to December 31st. A first series of six generations was reached, but afterwards not more than two or three could be obtained, and the inoculations frequently failed.

She was inoculated on the thighs from November 19th to May 30th, the punctures taking freely, the final series, with matter from Case 4 (soft), extending through as many as thirty-eight generations. The treatment occupied a period of eight months seven days.

Progress.—The secondary eruption and other symptoms gradually disappeared, but during the treatment mucous tubercles appeared on the vulva on two occasions, which subsided under local applications.

Result.—Discharged to the Lock Asylum, July 31st, 1866, ten months and eight days from the commencement of the inoculations, and has remained well up to the present date, April 1867. 422 inoculations were made; 296 of these were positive, 126 negative. The longest series from the same matter was the final one, which reached thirty-eight generations (soft).

The fact of her having taken mercury some years before, for liver disease, is worthy of notice in connection with the irregular progress and long duration of the inoculations.

CASE 6.—Female, F. S—, æt. 18, admitted September 28th, 1865; discharged February 3rd, 1866.

Symptoms.—Mucous tubercles on labia; eruption of squamous patches on head, face, and trunk, with roseola on limbs, of one month's duration. Induration of inguinal and posterior cervical lymphatic glands.

Syphilisation.—October 11th.—Inoculated on the chest with matter from Case 5, originating from a soft sore, which went through sixteen generations, failing on November 28th. The same matter was transferred to the arms on November 19th, and from thence to the thighs on December 1st, going through nine generations and failing on December 19th.

Inoculations were then practised with matter from various sources till January 31st, but a series of two was the most that could be obtained, and five consecutive attempts on the right thigh proved negative.

Finally, on January 31st small pustules were produced with fresh matter from soft sores in a male out-patient. The result of these, however, was not watched, as she left the hospital and did not again attend. An approximate immunity was obtained in this case in three months and twenty-three days.

Progress.—About a fortnight after the commencement of the treatment she had a sharp attack of iritis in the right eye. This subsided under simple treatment by atropine and sedatives, without any permanent damage to the eye.

The eruption and mucous tubercles remained stationary

for more than two months, but they had completely disappeared by the end of January. She was much out of health when admitted, but improved greatly in appearance and gained flesh during her stay in the hospital.

Result.—Discharged February 3rd, 1866, three months and twenty-three days from the commencement of treatment, apparently quite well, and has not been heard of since. 260 inoculations were made; 154 of these were positive, 106 negative. The longest series obtained from the same matter was twenty-one (soft).

CASE 7.—Female, A. C—, æt. 18, admitted October 12th, 1865; discharged February 20th, 1866.

Symptoms.—Mucous tubercles on labia; eruption of well-marked roseola on body and limbs, which has existed four weeks; enlargement of inguinal and posterior cervical lymphatic glands. No previous treatment.

Syphilisation.—October 14th.—Inoculated on the chest with matter from Case 2 (soft), which went through eight generations. This was followed on November 7th with matter from Case 23 (soft), which also failed at the eighth generation; it was transferred on November 25th from the sides to the arms, but ceased to take at the third series.

On December 10th she was inoculated on the thigh with matter taken by Mr. Gascoven from a well-developed indurated sore in a female out-patient at St. Mary's Hospital, who afterwards had secondary symptoms. This took well, and produced eleven generations on the thighs, whence it was transferred to the arms, where it went through seven generations.

Between January 13th and February 7th she was inoculated four times—once with matter from a suppurating bubo, which failed at the second inoculation; and three times with matter originating in hard sores which had passed through patients undergoing syphilisation, but on each occasion with a negative result.

A practical immunity was attained in this case in three months and seventeen days.

Progress.—At the end of two months the eruption was

fading and the mucous tubercles were nearly well. By the time the inoculations were concluded there were no traces remaining of her venereal symptoms.

Result.—Discharged to the Lock Asylum February 20th, 1866, four months and six days from the commencement of treatment, and has remained there quite well up to the present date, April 1867. 265 inoculations were made; 160 of these were positive, 105 negative. The longest series obtained from the same matter was ten (hard).

CASE 8.—Female, H. W—, æt. 17, admitted October 12th, 1865; discharged January 28th, 1866.

Symptoms.—Copious and well-developed squamous eruption on trunk and extremities, of recent date; extensive and severe mucous tubercles on vulva, extending to the groin and inside of the thighs; multiple glandular enlargement in inguinal and posterior cervical regions. No previous treatment.

Syphilisation.—November 1st.—Inoculated with matter (hard) from Case 1, which failed. November 4th, inoculated on the chest with matter from Case 25 (soft), which produced eighteen generations of good pustules to December 25th. December 1st, inoculated on the arms from one of the above pustules, where twelve generations were obtained, to January 4th. On December 16th the matter was transferred from the arms to the thighs, where it went through seven generations to January 3rd.

Between January 6th and 22nd she was inoculated five times with matter from different sources, both hard and soft, but without success, the last time from a suppurating bubo, which took freely on other patients.

There was complete immunity, therefore, in this case in two months and three days.

Progress.—At the end of November the mucous tubercles were better, probably from the effect of local applications; the eruption was much the same. December 31st.—Eruption rapidly fading; local symptoms also much better.

Result.—January 28th.—Apparently quite well in every respect; discharged to the Lock Asylum two months and

twenty-eight days from the commencement of the treatment ; she remained there quite well till April 1867, when she left for a situation. 262 inoculations were made ; 168 of these were positive, 94 negative. Matter (soft) from one source only was employed ; it was never renewed, and went through twenty-one generations. (See Diagram II.)

CASE 9.—Female, M. A. S—, æt. 25, admitted September 25th, 1865 ; discharged April 10th, 1866.

Symptoms.—Mucous tubercles on labia, severe ; secondary eruption of roseola, mixed with squamous patches on chest and back, of a month's duration ; multiple glandular enlargement in both groins. No previous treatment.

Syphilisation.—November 22nd.—No improvement having taken place in two months under simple and non-mercurial treatment, she was inoculated on the chest and also on the right arm with matter from Case 4, which had originated in a hard sore. The result was negative on the chest, but positive on the arm, where it went through nine generations.

November 25th.—Inoculated with negative result on left arm, with matter from an unirritated hard sore in a male out-patient ; also on the same day with matter from a characteristic hard sore in another male-patient (Case 22) which had been irritated for two days with savine ointment. Six punctures were made from this, three on each side of the chest. All six took freely, and produced well-developed pustules, which went through eleven generations to December 25th.

February 2nd.—After six consecutive failures on the thighs with matter from various sources, hard and soft, she was inoculated on the *right* thigh with matter from multiple soft sores in a male out-patient, and on the *left* thigh with matter from a well-marked indurated sore in another male out-patient, which had been irritated for two days with Unguentum Sabinæ. Large and well-marked pustules resulted on both thighs, and their appearance was in every respect identical. Both went through nine generations, and terminated on the same date March 3rd. After this no positive result could be obtained.

*Case 8.—Treatment Commenced Nov.^r 1st 1865,
terminated Jan.^r 22, 1866.*

There was immunity in this case in three months and twenty days.

Progress.—There was a gradual subsidence in the syphilitic symptoms, which had entirely disappeared by the time the inoculations were concluded. Some of the later inoculations were very tedious in healing.

Result.—Discharged quite well, April 10th, 1866, four months and eighteen days from the commencement of treatment. 264 punctures were made; 170 of these were positive, 94 negative. The longest series from the same matter was eleven (hard).

She applied in March 1867, with swelling and superficial ulceration of left labium, which subsided in a fortnight under simple treatment. As she presented no other symptom, this was probably not connected with her former disease. (See Diagram III.)

CASE 10.—Female, E. F—, æt. 19, admitted November 11th, 1865; discharged April 3rd, 1866.

Symptoms.—Large raised patches of mucous tubercles on labia, extending to the right groin; well-marked eruption of roseola on chest and back, of recent date; induration of inguinal and posterior cervical lymphatic glands. No previous treatment.

Syphilisation.—November 28th.—Inoculated with matter from soft sores in a male out-patient, which went through seven generations; this was followed by matter (hard) from Case 7, which failed at the second generation; then by matter (also hard) from Case 12, which failed at fourth generation.

December 22nd to February 3rd.—Inoculated on arms with matter from various sources, principally hard, but none went through more than four generations.

February 10th.—Inoculated on both thighs from Case 9, on the left side with matter originating in a hard sore, on the right side in a soft sore. As in Case 9, there was no difference in the appearance of the pustules, which were all large and well developed; the “soft” matter failed at the seventh generation, but the “hard” reached the fourteenth.

The inoculations occupied altogether more than four months, failing on March 31st.

Progress.—By the end of December, one month from the commencement of the inoculations, the mucous tubercles were improving. At the end of January they were nearly well, and the eruption also was fading. At the end of March there was no trace of either.

Result.—Discharged, apparently quite well, April 2nd, 1866, four months and four days from the commencement of treatment; she has not since been heard of. 244 inoculations were made; 127 of these were positive, 117 negative. The longest series from the same matter was thirteen; this was the final series, and was from “hard” matter.

CASE 11.—Female, E. N—, æt. 20, admitted October 6th, 1865; discharged April 3rd, 1866.

Symptoms.—November 28th.—Mucous tubercles on labiâ; copious eruption of roseola, mixed with patches of psoriasis on trunk and limbs; induration of inguinal and posterior cervical lymphatic glands.

Admitted in October with sores on labia, which soon healed. Three weeks afterwards the eruption appeared, and later the mucous tubercles on the vulva. No previous mercurial treatment.

Syphilisation.—November 28th.—Inoculated on the chest with matter from Case 4 (hard), which went through five generations to December 10th; and was followed by matter of the same character from the chest of Case 9, which went through nine generations to January 13th.

November 28th to March 3rd.—Inoculated on the arms twenty-one times with matter from various sources, hard and soft, but no pustules were obtained which could be reinoculated. She was inoculated on the thighs six different times with matter originating in indurated chancres, but with a negative result. This patient was successfully inoculated with matter which had origin in hard sores only. Immunity was obtained in six weeks, after fourteen consecutive inoculations—in one series of five and in another of nine generations.

Progress.—The venereal symptoms gradually disappeared, and she was entirely free from them by the end of March.

Result.—Discharged, apparently quite well, April 3rd, 1866, four months five days from the commencement of the inoculations. Attended as an out-patient on May 5th, with a small patch of mucous tubercles near the anus; this shortly got well under the application of nitrate of silver and astringent lotions; she has not been heard of since. 266 inoculations were made; 82 of these were positive, 184 negative. The longest series obtained from the same matter was nine (hard).

CASE 12.—Female, H. C—, æt. 18, admitted November 2nd, 1865; died of sloughing phagedæna May 24th, 1866.

Symptoms and History.—Was admitted with a large sloughing sore on the right labium, extending to the thigh; both labia were covered with patches of mucous tubercles in a state of ulceration. Copious eruption of roseola mixed with squamous patches; induration of inguinal and posterior cervical lymphatic glands. First noticed disease six weeks before admission; after three weeks went to the workhouse, and whilst there the sloughing commenced. After a month's treatment in the Lock Hospital the sloughing sore was nearly well, but the secondary affections remained in the same condition, though her health had very much improved. No previous mercurial treatment.

Syphilisation.—Commenced December 1st. Was inoculated six times to December 10th, negatively, with matter from Case 4 (hard).

December 11th.—A positive result was obtained with matter from the arm of Case 9 (hard), which went through eighteen generations of well-developed pustules on the sides and arms to February 10th.

February 14th.—Inoculated on the arms with matter from the left thigh of Case 9 (hard), which went through twenty-one generations on the arms and thighs to May 6th, when it was still taking freely, but was discontinued, in consequence of the reappearance of sloughing in the cicatrix on the labium,

five months and five days after the commencement of the inoculations.

Progress and Result.—Her general health was at first very indifferent, but improved greatly, and during the first four months she gained strength and flesh; towards the end of that time the mucous tubercles were well and the eruption was nearly gone.

On April 11th the sloughing of the labium recommenced, and in spite of all treatment spread to the thighs and lower part of the abdomen; she gradually sank, and died May 24th, 1866, five months and twenty-four days from the commencement of the inoculations. No sloughing took place at any of the inoculated spots. 285 inoculations were made; 196 of these were positive, 89 negative. The longest series obtained from the same matter was twenty-one (hard); no matter from soft sores was used in this case.

CASE 13.—Female, A. H—, æt. 21, admitted December 7th, 1865; discharged June 26th, 1866.

Symptoms.—Mucous tubercles on labia of three weeks' duration, and similar patches on tonsils; eruption of squamous patches mixed with roseola on chest and back; induration of inguinal and posterior cervical lymphatic glands. No previous mercurial treatment.

Syphilisation.—December 13th.—Inoculated with matter from the arm of Case 9 (hard), which went through nine generations to January 6th.

About this date she was attacked with jaundice, which lasted for a month (till February 7th). During this time several inoculations were made with matter from different sources, hard and soft, but the result was uniformly negative.

February 10th.—Having recovered from the jaundice, she was inoculated on the right arm with matter from the left thigh of Case 9 (hard), which took freely and went through thirteen generations on the arms and thighs till March 28th. At the same time the left arm was inoculated from soft sores in a male out-patient, and seven generations resulted, the pustules on the two arms being identical in appearance. After these had failed, matter from Case 22

(hard) went through six generations on the thighs from April 21st to May 12th.

From this date, the pustules obtained were small and never passed beyond the third generation. From May 26th to June 9th five inoculations failed altogether; immunity was obtained in five months and ten days.

Progress.—The symptoms gradually disappeared; her health was good throughout, except while she was suffering from the jaundice above mentioned.

Result.—Left the hospital for the Lock Asylum June 26th, 1866, six months and thirteen days from the commencement of treatment, and she remained there quite well for six months. 287 inoculations were made; 164 of these were positive, 123 negative. The longest series obtained from the same matter was thirteen (hard).

CASE 14.—Female, M. L—, æt. 18. admitted December 7th, 1865; discharged April 3rd, 1866.

Symptoms.—Mucous tubercles on labia; diffused squamous eruption on trunk and limbs, of recent date. Induration of inguinal and posterior cervical lymphatic glands. No previous mercurial treatment.

Syphilisation.—December 13th.—Inoculated with matter from Case 9 (hard), which went through five generations; and was followed by matter from Case 5 (hard), which failed at the third generation.

January 6th to February 7th.—Some imperfect pustules resulted, but more frequently failures, with matter from various sources, hard and soft.

February 10th to March the 3rd.—Inoculated seven different times on the arms, with four partially successful results and three failures.

March 3rd to March 28th.—Seven inoculations were made on the thighs with matter from various sources, but two only produced pustules; these, however, could not be reinoculated. Immunity appeared to be complete in two months and twenty-seven days.

Progress.—Uniformly good; the syphilitic symptoms

gradually disappeared, and were quite well when the inoculations were discontinued.

Result.—Discharged to the Lock Asylum April 3rd, 1866, three months and twenty-one days from the commencement of treatment; she has remained well to the present date, April 1867. 173 inoculations were made; 66 of these were positive, 107 negative. The longest series from the same matter was five (hard).

CASE 15.—Female, E. D—, æt. 16, admitted November 9th, 1865; discharged June 27th, 1866.

Symptoms.—Mucous tubercles in a state of ulceration on labia and around anus; severe squamous eruption on trunk; scattered patches of the same on limbs; face covered with thick scaly patches, of about six weeks' duration. No previous mercurial treatment.

Syphilisation.—December 16th to January 31st.—Inoculated on the trunk with matter originating in hard sores; the pustules were small and often failed altogether; they only once reached five generations.

February 7th.—Good pustules obtained on the arms with matter from a soft sore; this went through nine generations to March 7th, and was followed by matter from Case 12 (hard), which went through six generations to March 28th.

March 31st.—Inoculations commenced on the thighs; after several failures, a series of six generations was obtained with matter from an out-patient (soft), terminating May 9th; no good pustules were again produced, and from May 23rd to June 19th the result of five inoculations with matter from different sources was altogether negative; the last of these was made with matter from soft sores, which took freely on the bearer. Immunity complete in four months and twenty-seven days.

Progress.—For three months there was no improvement in the eruption on the body, whilst that on the face became much worse. In April she was attacked with iritis in both eyes; this, however, subsided in about three weeks under atropine drops and mild astringent lotions. At the end of

April the eruption began to fade, and by the middle of June, with the exception of some trifling stains, it was altogether gone.

Result.—Discharged to the Lock Asylum June 27th, 1866, six months and eleven days from the commencement of the inoculations, and has remained there well to the present date, April 1867. 262 inoculations made; 131 of these were positive, 131 negative. The longest series from the same matter was nine (soft).

CASE 16.—Female, E. T—, æt. 18, admitted June 21st, 1866; discharged December 17th, 1866.

Symptoms.—Large crop of mucous tubercles on labia; well-developed squamous eruption on arms and neck, of recent date; slight enlargement of posterior cervical glands, none of those in the groin. Previous treatment local only.

Syphilisation.—June 30th.—Inoculated with matter taken direct from soft sores in another female patient, which went through eleven generations to August 4th.

August 11th.—Inoculated with matter from a very well-marked typical hard sore on the labium of a female in-patient. Six punctures were made, five of which failed, but one produced a pustule, from which a series of thirteen generations was obtained, to September 26th.

September 29th.—Inoculated on the arms with matter from Case 17 (soft); this went through ten generations to November 1st.

November 4th to December 3rd.—Inoculated on the thighs with the same matter, and also from Case 18; the pustules were either not reinoculable or the punctures failed altogether. Immunity in about five months.

Progress.—Symptoms remained stationary for the first two months, after which they gradually disappeared, and were entirely gone some time before the inoculations were concluded.

Result.—Discharged to the Lock Asylum December 17th, 1866, five months and seventeen days from the commencement of treatment; has remained there quite well to the

present date, April 1867. 156 punctures were made; 116 of these were positive, 40 negative. The longest series from the same matter was thirteen (hard).

CASE 17.—Female, E. H—, æt. 19, admitted June 21st, 1866; discharged April 29th, 1867.

Symptoms.—Mucous tubercles on labia; squamous eruption on trunk and lower extremities of about two months' duration; indurated inguinal glands. No previous treatment.

Syphilisation.—June 30th.—Inoculated on the chest with matter taken direct from soft sores in a female in-patient. This went through twenty-seven generations of good pustules till October 2nd.

September 29th.—Inoculated on the arms with matter from Case 16 (hard), which went through eleven generations to November 4th, and was then transferred to the thighs, where it went through six generations to November 23rd, at which date it failed altogether, the pustules having been for some time very imperfect.

November 30th.—She was inoculated by the house-surgeon, but not by our direction, from a patient with a spreading phagedænic sore on the labium and buttock; two punctures were made on each thigh, and large pustules having been developed, two more inoculations were made from them three days later. Almost immediately all these punctures took on a phagedænic action, and spread to a very serious extent. Those on the left thigh coalesced and produced a sloughing sore of considerable size. The sloughing action was not arrested for some weeks; she then recovered slowly, but was not in a condition to leave the hospital till April 29th, 1867.

Progress.—Her syphilitic symptoms showed no improvement for the first two months, after which they gradually subsided, and were scarcely perceptible at the end of four and a half months, when the inoculations were discontinued. At that time she was approaching a condition of immunity to ordinary matter, the pustules had been for some time very imperfect, and twice had failed altogether,

when the unfortunate application of matter from a phagedænic sore was made.

Result.—Discharged April 29th, 1867, ten months from the commencement of the inoculations. She was quite well of her syphilitic symptoms, but had suffered greatly in health from the effect of the sloughing sores. 137 inoculations were made; 122 of these were positive, 15 negative. The longest series from the same matter was twenty-seven (soft).

CASE 18.—Female, M. R—, æt. 38, admitted July 12th, 1866; discharged February 5th, 1867.

Symptoms.—Mucous tubercles on vulva, ulcerated; mucous patches on tonsils; squamous eruption on trunk and limbs, of about a month's duration; enlargement of inguinal lymphatic glands. No previous mercurial treatment.

Syphilisation.—July 21st.—Inoculated with matter from Case 17 (soft), which failed at the third generation, but being repeated from this same source went through twenty-six generations, viz. sixteen on the trunk and ten on the arms.

November 1st.—Inoculated on the thighs with matter from Case 16 (hard), which went through eight generations to November 23rd; also with matter from Case 17 (hard), which went through four generations, but these pustules were very small and imperfect.

November 30th.—This patient was also inoculated by the house-surgeon with matter from the same phagedænic sore as that used in Case 17. The result was similar; the pustules rapidly took on a sloughing action, and spread to about the size of a penny-piece. After the slough separated the sores were a long time healing. The sloughing, however, was much less extensive in this than in the previous case. These sores caused her detention in hospital till February 5th, 1867. There was approximate immunity to the action of ordinary matter in about four months.

Progress.—No improvement in the eruption for more than two months. On September 25th she was attacked with iritis. For this she was treated at first, like the other two cases, with atropine drops and sedative astringent lotions,

but in a few days, the inflammation having increased, and the loss of the eye being threatened, mercury was given until her gums were slightly touched. Under this treatment the iritis rapidly subsided and her eye suffered no permanent damage. Her other syphilitic symptoms now gradually disappeared, and she was apparently quite well, so far as they were concerned, some time before she left the hospital, where she was detained longer than would otherwise have been the case in consequence of the sloughing ulcers.

Result.—Left the hospital well February 5th, 1867, six months and fifteen days from the commencement of treatment. 130 inoculations were made; 103 of these were positive, 27 negative. The longest series obtained from the same matter was twenty-six (soft).

CASE 19.—Female, H. F—, æt. 18, admitted February 8th, 1866; left by her own wish May 18th, 1866.

Symptoms.—Swelling and excoriation of external genitals, with vaginal discharge; squamous eruption on face, trunk, and limbs, of five weeks' duration. No previous treatment.

Syphilisation.—February 14th, 1866.—Inoculated with matter from Case 9 (hard), which failed at the fourth generation. She was then inoculated on the trunk, till March 28th, with matter from Case 12 (hard), but a series of three was the longest that could be obtained.

March 31st to April 18th.—Inoculated on the arms with matter from different sources; result always negative.

April 21st.—Inoculated with matter originating in a hard sore; this had reached eight generations on May 17th and was still taking freely, when she left the hospital on leave for the day, and did not return. The inoculations were continued for three months and three days; there was as yet no evidence of approaching immunity.

Progress.—During the three months she was under treatment, there was no improvement in the eruption for the first six or seven weeks, after which time it appeared to be slowly fading away. The excoriations on the labia soon got well,

but were followed by a crop of mucous tubercles shortly afterwards.

Result.—Left the hospital May 17th, 1866, before the inoculations were concluded, three months and three days from their commencement. 102 inoculations were made, 74 of these were positive, 28 negative. The longest series obtained from the same matter was eight (hard).

CASE 20.—Male, D. B—, æt. 22, a Swedish sailor, admitted December 7th, 1865; discharged by his own wish, June 19th, 1866.

Symptoms.—Large and well-marked indurated sore on prepuce; eruption of roseola on trunk; mucous tubercles at umbilicus and anus; multiple glandular enlargement in groins and posterior cervical regions.

The sore was contracted four months ago; it appeared eight days after connexion and has never healed. No previous treatment.

Syphilisation.—December 6th.—Inoculated by Dr. Böeck at Guy's Hospital, the day before his admission, with matter from a soft sore. This went through fourteen generations of well-developed pustules on the chest, terminating January 20th.

January 6th.—Inoculated on the chest with matter from the right arm of Case 22 (the sore from which this matter was taken was the product of auto-inoculation from a typical indurated chancre on the prepuce); it went through thirty generations, terminating on May 15th.

April 21st.—Inoculated unsuccessfully with matter (hard) from Case 21.

May 19th to June 14th.—Inoculated repeatedly on both arms with matter from an in-patient with a well-marked indurated chancre, but without result.

June 9th.—Inoculated successfully on the chest from a suppurating bubo, but it ceased to take at the third generation.

The inoculations occupied a period of more than six months, but although the pustules were large and well developed for four or five months, immunity was not established when he left the hospital.

Progress.—The eruption had disappeared in about two months; the mucous tubercles at the umbilicus were very tedious in healing, though frequently touched with nitrate of silver; others broke out at the anus at different periods during the treatment.

Result.—Discharged at his own request, June 19th, 1866, six months and thirteen days from the commencement of treatment. 352 inoculations were made; 178 of these were positive, 174 negative. The longest series obtained from the same matter was thirty (hard).

CASE 21.—Male, R. M—, æt. 26, admitted January 4th; discharged May 8th, 1866.

History and Symptoms.—Contracted a sore on the prepuce three months ago, for which he has been attending as an out-patient for two months, but no mercury has been given. On admission there was induration of the prepuce, causing phimosis; well-marked eruption of roseola; enlargement of inguinal and posterior cervical glands.

Syphilisation.—January 13th.—Inoculated from the left arm of Case 22; the sore from which this matter was taken was the product of inoculation from a female patient (Case 9), in whom direct inoculation from the indurated chancre of the same Case (22) had been successful. This produced six generations. After some failures he was successfully inoculated on March 17th with matter from Case 20 (this also had its origin in the indurated chancre of Case 22); it went through thirteen generations and failed on May 1st.

Progress and Result.—The eruption was gradually fading, but had not entirely disappeared, nor was immunity obtained on May 8th, when he left the hospital by his own wish, after three months and twenty-five days' treatment. He has not since been seen. 133 inoculations were made; 93 of these were positive, 40 negative. The longest series obtained from the same matter was thirteen (hard).

CASE 22, under Mr. W. Coulson.—Male, C. D—, æt. 20, admitted as out-patient September 23rd, 1865, as in-patient

January 4th, 1866; discharged at his own request, April 6th, 1866. The treatment throughout was non-mercurial.

History and Symptoms.—The primary chancre appeared early in September, about a fortnight after connexion; it commenced as a flat dry sore behind the corona, and continued to furnish a scanty thin serous secretion until irritated with savine ointment.

November 23rd, 1865.—Large indurated sore, the size of half a crown, involving corona glandis, and adjacent part of prepuce on right side; well-marked eruption of roseola on head, face, arms, and trunk; multiple glandular enlargement in inguinal and posterior cervical regions.¹

Syphilisation.—November 27th.—Was inoculated on the right arm from his own chancre, which had been irritated for several days with savine ointment. The result being negative, the inoculations were continued daily till December 15th, when one pustule was produced, from which a series of well-developed pustules was obtained, extending through ten generations to January 18th.

On the same day, viz. November 27th, he was inoculated on the right side of the chest from a soft sore, which went through twelve generations, and failed on January 18th.

January 21st.—Inoculated successfully with matter from Case 21 (hard); the sore from which this was taken had its origin in one resulting from direct inoculation of his own indurated chancre upon a female patient (Case 9). This failed at the third generation.

January 29th.—Inoculated from an indurated sore in a male out-patient, with positive result, but the pustules were only imperfectly reinoculable.

December 15th.—Was inoculated on the left arm with matter from Case 9, which had been originally derived from his own indurated chancre; this went through seventeen generations, terminating February 18th.

¹ On November 25th a female patient (Case 9) was inoculated from this man's chancre after it had been made to suppurate with savine ointment; six punctures were made, and all proved successful. This was after the sore had been irritated for two days with the ointment, and before he had been inoculated with matter from any other source.

March.—Was inoculated successfully from a hard sore in a male out-patient; this went through ten generations to April 4th.

On April 6th the inoculations were discontinued by his own wish, immunity not having been yet obtained after four months and ten days' treatment.

Progress.—His chancre healed very slowly, and the eruption remained for a considerable time. There was still a distinct mottling of the skin when he left the hospital, April 6th, 1866, four months and eighteen days from the commencement of the inoculations.

Result.—This patient applied at the hospital to Mr. Coulson a few months afterwards, with a return of his eruption. 279 inoculations were made; 173 positive, 106 negative. The longest series obtained was seventeen (hard).

CLASS II.—*Cases which had undergone a previous mercurial treatment.*

CASE 23.—Female, A. W—, æt. 23, admitted August 24th, 1865, discharged February 5th, 1866.

Symptoms and History.—Patches of squamous eruption on trunk, face, and head. Disease of six months' duration; was treated in the first instance with mercury to slight salivation, under which the symptoms disappeared; has had two relapses, and has each time taken mercury. The present is her third relapse.

Syphilisation.—October 5th, 1865.—Inoculations commenced with matter from Case 4 (soft), which went through eight generations of good pustules to October 29th.

October 29th to November 19th.—The pustules produced on the sides from different kinds of matter were very imperfect, and could not be made to reach a third generation.

November 11th to December 25th.—The same was the case on the arms, though matter from eight different sources was employed.

November 22nd to February 12th.—On the thighs also the inoculations were not followed by the usual development

of pustules. Once only a series of five generations was reached with matter from Case 10 (soft). With this exception a third series was never attained, though matter from sixteen different sources was used. There was an immunity nearly, if not quite, complete in about four months.

Progress and Result.—The secondary manifestations gradually disappeared, and she was apparently quite well when she left the hospital, on February 5th, 1866, four months from the commencement of treatment. She returned in a short time with a recurrence of the eruption; for this the bichloride of mercury was prescribed, and it speedily disappeared; she has not since been heard of. 273 inoculations were made; 92 of these were positive, 181 negative. The longest series obtained from the same matter was eight (soft).

CASE 24.—Female, M. G—, æt. 26, admitted September 19th, 1865, discharged April 10th, 1866.

Symptoms.—Mucous tubercles on labia and around anus; copious eruption of squamous patches on body and limbs; multiple glandular enlargement in inguinal and posterior cervical regions. Has had disease for three months and has been treated at the Middlesex Hospital by mercurial fumigations.

Syphilisation.—October 11th.—Inoculated with matter from Case 27 (soft), which went through ten generations on the chest to November 10th. After this no good pustules resulted from inoculation on this region of the body, though matter from several sources was employed.

November 13th to December 27th.—Inoculated on the arms with eight different kinds of matter, but a series of four was the longest obtained.

November 28th to March 4th.—Inoculated on the thighs with matter from seventeen different sources, six times with a positive result, but on one occasion only was a series of six generations reached. Eleven times the result was entirely negative. Immunity was obtained in five months.

Progress.—The eruption gradually disappeared and the mucous tubercles on the labia got well, but broke out again once or twice during the treatment; similar spots also made

their appearance in the mouth; in both situations they were treated by the occasional application of nitrate of silver.

Result.—She was discharged to the Lock Asylum quite well, April 10th, 1866, six months from the commencement of the treatment. She shortly afterwards left the asylum and has not since been heard of. 291 inoculations were made; 127 of these were positive, 164 negative. The longest series obtained from the same matter was ten (soft).

CASE 25.—Female, M. B—, æt. 25, admitted September 28th, 1865; discharged April 10th, 1866.

Symptoms and History.—Well-developed squamous eruption on face, trunk, and limbs; remains of mucous tubercles on labia. She noticed sores on the vulva five months before her admission; two months later the eruption appeared; has been treated with mercurial pills to salivation.

Syphilisation.—October 23rd, 1865.—Inoculated on the chest with matter from Case 2 (soft), which went through nine generations of pustules to November 19th, but no good pustules were afterwards obtained in this region.

November 4th to December 27th.—Inoculated on the arms with matter from Case 4 (hard); this went through twelve generations.

December 1st to April 7th.—Inoculated on the thighs with matter from a variety of sources, but a series of eight was the longest attained, and the failures were frequent. When the treatment was discontinued, it was very difficult to obtain pustules, and they were small and abortive, but there was not an absolute immunity.

Progress.—The eruption gradually subsided, but there were still some faint traces of it when she left. Some of the inoculated spots on the thighs had been very slow in healing, and were still covered with thick scabs.

Result.—Left the hospital April 10th, 1866, five months and eighteen days from the commencement of treatment. 339 punctures were made; 195 of these were positive, 144 negative. The longest series from the same matter was twelve (hard).

May 29th.—Was re-admitted with mucous patches at umbilicus and ulcers on the inside of the cheek, which soon disappeared under tonics and simple local treatment. The inoculated spots on the thighs were still covered with scabs.

She left the hospital quite well, July 10th, 1866, and has not attended since.

CASE 26.—Female, A. S—, æt. 23, admitted November 18th, 1865; died April 5th, 1866.

Symptoms and History.—Copious and well-developed squamous eruption on face and limbs; multiple enlargement of inguinal glands; severe nocturnal pains in head and limbs. Was in the hospital five months previously with the primary sore and a secondary eruption, for which she was treated with mercury. The eruption disappeared, but has recently returned in a more severe form. She is in failing health and much emaciated.

Syphilisation.—November 28th.—Inoculated with matter from Case 4 (hard), which failed. She was then inoculated on forty-one occasions till March 17th, a period of three months and nineteen days, eighteen times on the trunk, nineteen on the arms, and four times on the thighs. Every variety of matter at our disposal was used, but the result was almost invariably negative; once on the chest, and once on the arms, small pustules were obtained, which were reinoculable once, but not a second time.

Progress and Result.—Under iodide of potassium, wine, and good diet, she appeared to improve in health for a few weeks after the inoculations were first attempted, but at the end of that time an abdominal enlargement, occupying the right hypochondriac and epigastric regions, became evident. This tumour increased rapidly in size; it presented a smooth uniform surface, and was somewhat soft and elastic to the touch. Our impression was that she was suffering from malignant disease of the liver, and this opinion was strengthened by the rapid emaciation and general cachexia which accompanied the growth of the tumour.

She gradually sank and died April 6th, 1866, four months after the first appearance of the swelling. The post-mortem examination showed an enormous enlargement of the liver, which was affected uniformly throughout with amyloid degeneration; the other organs were healthy; the secondary eruption had not disappeared at the time of her death.

This case is of peculiar interest, in consequence of the almost uniform failure of the inoculations. They were continued for the sake of experiment, but it seems clear that they had no influence over the progress of her case one way or the other. 248 inoculations were made; 226 of these were negative, 22 are marked as positive, but they were so small and imperfect that they scarcely deserve to be so called.

CASE 27.—Female, J. S—, æt. 33, admitted September 8th, 1865; died May 17th, 1866.

Symptoms and History.—Large tertiary ulceration on left shoulder; necrosis of frontal and parietal bones; diseased bone in nose; hard node on tibia; soft swelling on lower part of right fibula; old ulceration and partial destruction of soft palate.

The first symptom observed by this patient was the ulceration of the throat, which commenced a year and a half before her admission. After a few months there was evidence of disease in the cranial bones. The ulceration on the shoulder was of two months' duration. She had taken mercury on several occasions to salivation. This patient was in a very depressed and cachectic condition, and was much emaciated.

Syphilisation.—The inoculations were commenced on the chest by Dr. Böeck, September 8th, 1865, with matter from Case 1 (soft); this was unsuccessful. She was then inoculated twenty-nine times, and almost daily, with matter from various patients undergoing syphilisation, but the result was either complete failure or the production of abortive pustules, which were not reinoculable. At length on October 23rd a positive result was obtained on the right arm

with matter from Case 23 (soft), but it failed at the fourth generation. Matter was then used from Case 5, which ceased to take at the third generation. On the 13th November matter from Case 4 was used with a positive result, and went through a series of fourteen well-developed pustules. With the same matter at the same date inoculations were made on the thighs, and were carried through nineteen generations to January 13th, 1866. From this time she was inoculated regularly on the thighs with positive results, several prolonged series being obtained with matter from different sources up to April 28th.

There was no evidence of approaching immunity at this date (six months and twenty days from the commencement of treatment), when the inoculations were discontinued in consequence of sloughing of the cranial wounds having set in, with serious head symptoms. 468 inoculations were made; 254 of these were positive, 214 negative. The longest series derived from the same matter was nineteen (soft).

Progress and Result.—No improvement was observed during the first three weeks of the treatment, but the soft node on the fibula gave way and caused an ulcer. Iodide of Potassium with sarsaparilla was therefore ordered on September 29th, under which she improved in health and condition, and the inoculations, which had hitherto failed altogether, began to give more promise of positive results. In consequence of this improvement in the inoculations, Dr. Böeck discontinued the medicine on October 11th, but its omission was soon followed by an aggravation of the symptoms, especially by the rapid spreading of the ulceration over the fibula. The iodide was accordingly resumed on the 1st November and continued for three weeks; she then regained health and strength, and the ulcerations on the shoulder and leg began to heal. On the 22nd of November the iodide was again omitted.

From this time till February she continued to improve; the ulcers on the leg and shoulder healed almost entirely; she gained flesh and was able to walk about the wards. The inoculations were now uniformly successful.

In March her health began to fail and the ulcerations on the shoulder and leg again broke out ; the iodide of potassium was therefore resumed,—this time, however, without any beneficial effect.

During April some loose portions of the parietal and frontal bones were removed, and early in May another piece of the parietal bone separated, exposing the dura mater. All this time the ulcerations were spreading, and she was seriously declining in health. Towards the end of April the inoculations were discontinued.

On the 10th May, she was attacked with paralysis. The open wound at the back of the head had for a few days previously assumed a sloughing appearance. The sloughing extended to the dura mater, which gave way, and the brain protruded. Her paralytic symptoms increased, and she died May 17th, 1866. Other sloughing cases were in the wards at the same time.

Remarks.—The remarks suggested by the cases above narrated may be divided into those relating to the value and effect of syphilisation as a method of treatment; and those having reference to the various pathological questions illustrated by the inoculations and their progress.

From the practical aspect of the question, the point to be first considered is the length of time occupied by the treatment. In those cases in which mercury had not been previously given, the inoculations occupied periods varying from six weeks to eight months and seven days. In the mercurial cases from three months and nineteen days to seven months and twenty days. The average in the first class was four months and three days; in the second class, five months and four days; and in the whole number of cases, four months and nine days.

This, however, does not represent the entire period during which the patients remained in the hospital, as the healing of the later inoculations required time, and was, in some of the cases, much protracted. Their stay in hospital averaged in

the non-mercurial cases, five months and fifteen days; in the mercurial cases, five months and nineteen days; and in the whole number, five months and sixteen days. The period is calculated from the date at which the inoculations were commenced.

The average duration of the sores produced by inoculation was about three weeks. The size of the ulcers varied in different individuals; their average diameter may be stated at about half an inch. They were as a rule smaller and, in every respect, milder when made on the trunk of the body than when made on the upper extremities; milder again on the upper extremities than on the lower. There was a general tendency towards diminution in size, and the sores progressed more rapidly as the treatment was proceeded with, till at length it was extremely difficult, and often impossible, to obtain any result from inoculation. When the susceptibility of one region of the body was exhausted (the trunk, for example), the inoculations would take freely on the arms, and when the arms had been subjected to a like process with a like result, they would still take freely on the thighs, till a period was reached when it was next to impossible to obtain pustules at all on any part of the body, or if obtainable, they were small and abortive, and the matter from them was not reinoculable.

The healing of the sores was in several of the cases delayed considerably beyond the average period mentioned, and this was observed to be the case more frequently on the lower extremities than elsewhere. The sores did not exhibit any great tendency to spread, the larger ones rarely exceeding the size of a shilling. Occasionally, however, where the punctures had been made too close together, larger sores were produced by two or more becoming confluent.

It is a very remarkable circumstance that in no case was there any perceptible affection of the neighbouring lymphatic glands resulting from the inoculations.

The pain occasioned by the inoculated sores was in some cases severe, in others it appeared to be trifling. It was in almost every instance cheerfully submitted to. It was found

to admit of alleviation to a great extent by careful dressing, so as to protect the sores from irritation and friction; simple ointment was applied for this purpose.

The inoculations did not appear in any case to exercise a prejudicial influence on the health of the patients. On the contrary, most of them improved in appearance, and seemed to gain strength while the inoculations were going on. This, however, may have been partly owing to enforced regularity in diet and habits, and to improved hygienic influences. The pustules and their resulting ulcers were better developed in those patients who were in robust health, than in those who were weakly and out of health. The number of inoculations required, before the process was completed, varied greatly. The smallest number of pustules in any case was sixty-six (Case 14), the largest number was 296 (Case 5).

The patients are, of course, permanently marked by the cicatrices. The appearance of these is very similar to those occasioned by vaccination.

We will now refer to the results obtained. First—in those cases which were uncomplicated by any previous mercurial treatment, twenty-two in number.

In sixteen of these the treatment was persevered with until an immunity, more or less complete, had been arrived at, and by the time this was effected the syphilitic manifestations had disappeared. In these cases, therefore, the process may be considered to have been carried to its legitimate termination. This result was obtained—

In 1 case in	.	.	1 month 15 days.
1	„	.	2 „ 3 „
7 cases in from	.	.	3 to 4 months.
4	„	.	4 to 5 „
2	„	.	5 to 6 „
1	„	.	7 to 8 „

Of these sixteen cases, six (Cases 1, 3, 6, 10, 17, 18) have not been heard of since their discharge from the hospital, but ten have remained under observation up to the present time (April, 1867), or to within a very recent date. Of these ten,

eight (Cases 2, 5, 7, 8, 13, 14, 15, 16) have been inmates of the Lock Asylum; all of them have remained in perfect health and have had no recurrence of their disease. Of the remaining two, one (Case 11) returned to the hospital with a slight relapse, in the form of mucous tubercles on the genitals, which, however, soon disappeared under simple local treatment; the other (Case 9) has recently applied with swelling and superficial ulceration of the labium, but, as these rapidly subsided, and she presented no other syphilitic symptoms, we are disposed to think it was not connected with her former disease.

In the remaining six cases the treatment was not persevered with to the end. Four of them, viz., the three males (Cases 20, 21, 22) and one of the females (Case 19), left the hospital by their own desire before it was properly completed. Of these four, we have subsequent information respecting one only (Case 22), who, after having been inoculated for four months, returned with a relapse of his cutaneous eruption soon after the practice was discontinued.

In the two other cases, females, the treatment was given up before there was evidence of immunity, in consequence of sloughing having recurred in the cicatrices of former sores. One of these patients (Case 12) died from phagedæna. The sloughing, however, did not originate in, nor was it propagated to, any of the inoculated sores; it was confined to the labium, groin, and abdomen.

The other (Case 4) suffered in a similar way and to an alarming extent, but gradually recovered. In her, also, the sloughing was confined almost entirely to the genital organs, though one of the neighbouring inoculations was affected to a limited extent. This patient has recently presented herself at the hospital; she is now in sound health and in a situation as laundry-maid. She has had no return of her venereal symptoms.

It would not be fair, in our opinion, to attribute the untoward result of these two cases to the inoculation treatment. Both had been originally admitted with sloughing sores, after recovering from which, syphilisation was adopted

for their secondary disease. Nothing unfavorable occurred in one for three months, in the other for five months: but when immunity was nearly reached, sloughing commenced in the cicatrices of the old sores, and not in the inoculations. It would probably never have occurred, but for the presence of several cases of phagedæna in the wards at that particular time.

Next—as to the result of the treatment in those cases comprising Class 2, in whom mercury had been previously given; they were five in number.

Three of them (Cases 23, 24, 25) went through the process to its conclusion, in periods respectively of four months, five months, and five and a half months, and when discharged from the hospital were apparently free from disease. Of these three, one (Case 24) has not since been heard of, the other two have returned with relapses. These were, however, mild in character; one of the patients speedily recovered under bichloride of mercury, the other got well without any specific treatment.

The remaining two patients died. One (Case 26) from disease of the liver, supposed during life to be malignant, but found after death to be amyloid degeneration. She was inoculated persistently for more than three months with every kind of matter procurable, but with almost uniformly negative results. The cause of death in her case was therefore obviously quite unconnected with the treatment by inoculation. The other (Case 27) died from sloughing of the dura mater and exposure of the brain after the separation of a piece of necrosed bone, at a time when sloughing sores were prevalent in the wards. In our opinion the cause of her death also was in no way attributable to the inoculation treatment.

The results obtained in these five cases, then, were very unsatisfactory, but they corroborate Dr. Böeck's experience that the previous administration of mercury interferes not only with the progress of the inoculations, but with their therapeutical action. Out of three who went through it to the end, as many as two were known to have suffered from return of the disease. In the fourth, the inoculations having

been almost uniformly negative must be held to have gone for nothing one way or the other. In the fifth, it is by no means clear that the improvement which was at one time observed was due to the inoculations, rather than to the good diet and to the iodide of potassium, which she was taking at the same time.

With respect to the disappearance of the syphilitic symptoms while the treatment was going on, it was remarkable that in nearly all the cases no improvement took place for a considerable time—usually not until the second or third month—while in many of them the symptoms appeared to be aggravated, and fresh outbreaks of eruption were observed. Three patients were attacked with iritis (Cases 6, 15, and 18). In the two first the inflammation subsided under simple treatment with atropine and sedatives, and no injury to the eyes resulted. In the third the inflammation was more severe, and it was not considered safe to refrain from the use of mercury. This drug was accordingly administered in the usual way, and under its influence the iritis rapidly disappeared.

As an auxiliary to the treatment by syphilisation, nitrate of silver was frequently used to the mucous tubercles on the genital organs, and to the similar patches on the mouth or tonsils, as without local treatment the inoculations appeared to exercise only a slight and tardy effect upon them.

Having thus given a brief history of the cases treated, and a summary of the results obtained, the principal questions requiring an answer respecting syphilisation appear to us to be—

Whether the process exercises any material or appreciable influence over the evolution and progress of the disease; or whether the favorable results may not more reasonably be attributed to lapse of time, the regular habits and regime of hospital life, and the natural tendency towards recovery which the disease exhibits in persons otherwise healthy?

Whether—if it be admitted that syphilisation has a beneficial influence—that influence is of a specific character, such as Dr. Böeck has claimed for it; or may it rather be ascribed

as it has been by others, solely to the depurative and excretory action of the ulcers?

We do not pretend, from the limited number of cases which have been under our observation, to speak with authority on these difficult and important questions. Our object in this paper is rather to record facts, than to express opinions: but we would, nevertheless, with much deference, submit to the society the following conclusions as those at which we have ourselves arrived.

We will commence by saying that we are disposed to reject the hypothesis that the results are, in any appreciable degree, owing to a depuratory or excretory action of the pustules, analogous to what would be obtained by an equal amount of suppurative action artificially induced in any other way. Without denying that a discharge of pus from the cutaneous surface may have some effect in the elimination of a poison from the system, we think, if this explanation were correct, an amelioration in the symptoms would have been noticed at an earlier period of the treatment (as is the case, for instance, when mercury or iodide of potassium are given), whereas the rule has certainly been, either that the syphilitic manifestations remained stationary for a considerable time, or that they exhibited decided aggravations. And the depurative hypothesis is further disproved by what is observed in the ulcerations which so often accompany the chronic and tertiary forms of the disease; the suppuration from which has certainly anything but a curative action.

There remains then the question—has syphilisation any specific effect over the disease? or is it devoid of all appreciable influence whatever? It will be obvious how great is the difficulty of eliminating the element of time and the natural tendency towards recovery in the consideration of such a question; it will not therefore be thought surprising if our conclusions regarding it are not precisely in accord.

It is the impression of one of us (Mr. James Lane) from the observation of these cases, that syphilisation does exert some beneficial and specific influence over the progress of the disease, possibly in the way ascribed to it by Dr. Böeck. It

has appeared to him that the treatment conducts patients through the disease more safely and rapidly than if they are left to themselves; that it leaves them with less liability to relapse, and that their relapses when they do occur are milder in character.

Mr. Gascoyen, on the other hand, thinks that the natural tendency to recovery which an early and uncomplicated constitutional syphilis exhibits with the lapse of time, and under circumstances favorable to the general health—such as the dietary, rest, regular hours, &c. of a hospital afford—is sufficient to account for the subsidence of the secondary symptoms during syphilisation; and he is doubtful whether relapses are less frequent under this than under the ordinary methods of treatment. Neither does he admit any specific or other influence on the disease or the system from the continued inoculation of the virus. Were such the case, these fresh introductions of virulent matter would, in his opinion, either add to and intensify the existing disease, or else contaminate the blood until a general cachexia is produced, neither of which conditions is met with in practice, but the contrary. He, therefore, considers that no effect whatever is produced either upon the disease or the system by syphilisation.

Differing, however, as we do, on the scientific aspect of the question, we are entirely in accord as to its practical bearings, and we are decidedly of opinion that syphilisation is not a treatment which can be recommended for adoption. We consider that, even if it could be admitted to possess all the advantages claimed for it by its advocates, its superiority over other modes of treatment, or in many instances over no treatment at all, would not sufficiently compensate for its tediousness, its painfulness, and the life-long marking which it entails upon the patient.

If syphilisation could be relied upon, after other treatment had failed, to control the severer forms of the disease (especially in its tertiary stage), or to prevent its hereditary transmission, the benefit derived would, without doubt, more than counterbalance these disadvantages, but unfortunately

these are precisely the cases in which it has admittedly the least influence.

We will now refer to some points in the pathology of the disease which are illustrated by these experiments.

The matter employed for inoculation in these cases was obtained sometimes from hard, sometimes from soft sores. Whenever it was practicable, matter from hard sores was used. Dr. Böeck prefers this kind of matter for the purpose of syphilisation, having found it more rapid and effectual in its curative action, and less locally irritating; nevertheless he does not believe there is any essential difference in the operation of the two kinds of matter.

There has been a marked difference in the inoculability of the secretion from these two varieties of venereal ulcers. When matter from soft sores was used, pustules were readily obtained in the great majority of cases, *but not in all*. When matter from hard sores was employed, the same result was obtained, but with considerable difficulty and the failures were more frequent. The difference in the inoculability of the two kinds of sores would appear to depend in a great measure on the different character of their secretion; that from the soft sore consisting of well-developed pus, whilst that from the hard sore is scanty and serous, and often altogether destitute of pus-globules. This difference was, we believe, first pointed out by Mr. Henry Lee,¹ who also showed that if the hard sore were artificially irritated and made to secrete pus, it then became inoculable without much difficulty. This is in accordance with the experience of Dr. Böeck, who has observed that in proportion as the secretion is thin and serous, so will be the probability of failure. He therefore recommends that a piece of dry lint should be left in contact with the sore for twenty-four hours, at the end of which time there will commonly be found a thick purulent secretion; or this result may be more readily obtained by the artificial irritation of the sore with a stimulant, such as

¹ 'British and Foreign Medico-Chirurgical Review,' October, 1856, and April, 1859.

savine powder or savine ointment. From the matter thus formed a positive result can usually be produced by inoculation. In case of failure he inoculates daily, and in this way rarely fails of success.

The view that properly developed pus is necessary for the successful inoculation of syphilis (at all events on a syphilitic patient) is supported, *conversely*, by the experiment of Rollet, who found that if the secretion from a soft sore were deprived of its pus-globules by filtration, the remaining liquor puris was not inoculable.

Among the cases we have related will be found five examples of successful inoculation, made direct from typical indurated sores, carefully selected for the purpose, and as the possibility of inoculating a syphilitic patient from sores of this description has been denied of late years by many eminent authorities, we would direct special attention to these cases as tending to elucidate a much controverted question.

The first example was in Case 22, the male patient treated by Mr. Walter Coulson. This man had an indurated chancre on the prepuce and a secondary eruption. He was inoculated successfully from his own sore by Mr. Coulson, but it was not till after a daily inoculation for nearly three weeks that a positive result was obtained. From this a series of seven generations was produced, and the matter was used in the inoculation of several other patients.

The next instance was in a female (Case 9) who was successfully inoculated from the primary sore of the above male patient, after it had been irritated for two days with savine ointment. Six punctures were made, and all six were followed by a positive result. The pustules were well developed and were carried through a series of eleven generations.

A third example of direct inoculation from an indurated sore occurred two months afterwards in the same female. The matter was taken from a carefully selected indurated sore in a male out-patient. The sore having been irritated for two days with Unguentum Sabinæ, three punctures were made, two

of which failed, but one produced a well-developed pustule which was inoculated through nine generations.

A fourth will be met with in Case 7. The matter was taken from a well-marked indurated sore in a female out-patient, who afterwards had a secondary eruption. Six inoculations were made and all were successful. They were carried through ten generations. The sore, which was quite recent, was also inoculated successfully on the patient herself.¹

A fifth will be found in Case 16, who was inoculated from a female patient with a well-marked indurated sore on the labium. In this case six punctures were made, but only one proved successful. It was reinoculable through twelve generations.

It appears then that there is greater difficulty in arriving at a positive result by inoculation with matter taken direct from a hard sore, than with matter from a soft sore, but when pustules are obtained, they are as freely reinoculable in the one case as in the other. They may be carried with equal facility through a lengthened series on the same patient, and transferred with equal readiness to others. In all these cases of inoculation from indurated sores, the pustules have been well developed, and have produced ulcers varying in size from a fourpenny piece to a shilling, but there has been nothing in their appearance to distinguish them from those made from non-indurated sores. There has been no more appearance of induration in the one than in the other; no noticeable difference in the duration of the ulcers (which averaged from three to four weeks), or in the appearance of the resulting cicatrices.

The instances we have mentioned afford, in our opinion, convincing proof that the hard sore may be inoculated on the

¹ This would furnish a sixth instance of successful inoculation from an indurated sore. A seventh example, which occurred at the Lock Hospital in February, 1866, may also be mentioned. The patient was a male, under Mr. W. Coulson, who succeeded after four consecutive days' inoculations, in obtaining well-marked, and reinoculable pustules. Both these are examples of auto-inoculation, and another is seen in Case 22.

bearer, or on another syphilitic patient. It appears to us impossible to explain them away, either by the theory of the mixed chancre, or by the supposition that they are all owing to an accidental contamination of the lancet with matter from soft sores.

But if the inoculability of the hard sore has been denied on insufficient grounds, these experiments go far to show that the inoculability of the soft sore has been much exaggerated.

It has been taught of late years that the distinctive character of the soft sore is its constant communicability by inoculation to all persons alike, and at all times, and whether they are the subjects of syphilis or not. This, according to our observation, is certainly not the case; it would appear that, sometimes from no obvious cause, but more often when there is great depression of the vital powers, the difficulty of obtaining a positive result by inoculating syphilitic matter is great, whether it be taken from hard or soft sores.

In one patient (Case 27) with severe tertiary syphilis, only an occasional, and then a very imperfect, result was obtained for more than six weeks, though she was inoculated almost daily; but at length as her health improved under the iodide of potassium and a liberal diet, pustules began to be developed. It was remarkable, also, in this case, that when the inoculations became successful, some of the earlier punctures, which had been apparently failures, came forward and produced pustules.

Another patient (Case 26), who was in a very depressed condition, and who ultimately died from disease of the liver, was inoculated over and over again with every variety of matter without effect. She was inoculated on forty-one different occasions, and in three or four only was anything approaching to a positive result obtained, and the pustules were then small and abortive.

In another female (Case 12), also in a very low condition, the inoculations at first failed, but succeeded afterwards and took freely, as her health improved.

In a fourth instance (Case 13) there was a very remark-

able temporary immunity during an attack of jaundice which lasted for about a month. In this patient, while she was jaundiced, no inoculations could be made to take, although they had done so freely before the affection commenced, and took again, with equal freedom, as soon as the jaundice got well.

In some other cases (5, 11, 14) there were also frequent failures, although the patients were apparently in sound health. It appears to us, therefore, from these numerous examples, that there are conditions, both natural and acquired, under which a person is exempt, temporarily at any rate, from the action of the virus even when obtained from a soft sore; and that some persons possess this immunity or power of resisting the effect of the poison much more than others.

In two cases (17 and 18) a circumstance was observed which is worthy of attention. When these two patients had been inoculated for more than four months, and when they had arrived at such a degree of immunity that it was impossible to obtain satisfactory pustules with the matter at our disposal, they were inoculated by the house-surgeon with matter from a spreading phagedænic sore, four punctures being made in each patient. In both cases sloughing sores were produced at each puncture. In Case 17 they coalesced, and spread to an alarming extent. In Case 18 they were less severe, though each puncture produced a sloughing sore of an inch and a half in diameter. These inoculations did not, even in their early stage, present the ordinary aspect of a syphilitic inoculation, but rapidly gave evidence of a spreading phagedænic action. It would seem, therefore, from these cases, that phagedæna may be communicated as such, directly, by inoculation, and this even in cases where there is an evident indisposition to inoculation with ordinary syphilitic matter.

The immunity to the action of the syphilitic virus obtained by repeated inoculation is another point of great interest. It appears to be beyond question that such matter cannot be

inoculated successfully *ad infinitum*, but that the susceptibility to its influence becomes gradually exhausted. At the commencement of the treatment the inoculations could, as a rule, be continued through a series of twelve or fifteen generations, without requiring the matter to be renewed, while the subsequent series became gradually shorter, until at length the result was altogether negative, or only small pustules were obtained, which could not again be inoculated. In many cases this immunity was tested repeatedly with matter from different sources. In some patients the immunity was less perfect, and with fresh matter two or three generations of pustules could be obtained, but these were small and imperfect, and rapidly healed, so that for all practical purposes the treatment came to an end. The longest series obtained in any case was thirty-eight (Case 5), and there were some between twenty and thirty. There were several exceptions to the rule that the first series was the longest, and the longest of all (thirty-eight) occurred towards the conclusion of the case.

In testing the degree of immunity, it should be remembered that the development of a small pustule, after the inoculation of new matter, is not sufficient evidence against the presence of this condition, as any irritant introduced beneath the skin may have the same effect. The only true test of a genuine syphilitic inoculation is, that it shall produce matter which is again inoculable.

It is also interesting to observe, that whether the matter employed was obtained from hard or from soft sores, the same degree of immunity was the result; and that the inoculation of matter from a hard sore would, in due course, cause insusceptibility to the action of that from a soft sore, and *vice versá*; and also when the patient had been treated partly with one matter and partly with the other, the immunity was equal against both.

Table showing the duration of the treatment in each case and the number of inoculations made.

Case.	Duration of treatment from first inoculation till immunity was obtained, or until the inoculations were discontinued.		Stay in hospital from date of first inoculation.		Number of inoculations made.		
	Months.	Days.	Months.	Days.	Positive.	Negative.	Total.
1	3	22	5	15	157	124	281
2	3	8	5	13	155	121	276
3	3	14	5	—	157	122	279
4	3	6	9	5	181	78	259
5	8	7	10	8	296	126	422
6	3	23	3	23	154	106	260
7	3	17	4	6	160	105	265
8	2	3	2	28	168	94	262
9	3	20	4	18	170	94	264
10	4	—	4	4	127	117	244
11	1	15	4	5	82	184	266
12	5	5	5	24	196	89	285
13	5	10	6	13	164	123	287
14	2	27	3	21	66	107	173
15	4	4	6	11	131	131	262
16	5	27	5	17	116	40	156
17	4	27	10	—	122	15	137
18	4	—	6	15	103	27	130
19	3	3	3	3	74	28	102
20	6	13	6	13	178	174	352
21	3	25	3	25	93	40	133
22	4	10	4	10	173	106	279
23	4	—	4	—	92	181	273
24	5	—	6	—	127	164	291
25	5	14	5	18	195	144	339
26	3	19	4	8	22	226	248
27	7	20	8	9	254	214	468
	116	19	149	12	3913	3080	6993
Average	4	9	5	16	145	114	259