REPORT
ON
TWO SERIES OF CASES
IN WHICH
SYPHILIS WAS COMMUNICATED IN THE
PRACTICE OF VACCINATION.

BY
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THE following report contains the narrative of two separate series of cases. At the time of my first report (which was read before the Society on April 25th) only one of these had come under my notice, and at that date none of the patients in it had passed further than the primary stage. The discussion of this paper was adjourned for a fortnight, and during this interval the second series of cases had been brought under my notice. At the adjourned meeting I presented a report upon them, with also some further particulars regarding the first. A second appendix was presented to the Society at its last meeting (June 27th), bringing the narrative of both series up to that date. At that time many of the subjects of the second series had presented all the

symptoms of constitutional syphilis in its most typical form of evolution, whilst none of those in the first had shown any constitutional phenomena which could be pronounced beyond dispute. This difference I was inclined to explain by reference to the fact that all in the first series had taken mercury, whilst none of those in the second had had any treatment. That this suggestion was correct has been since proved by the occurrence, in four of the first group, of secondary lesions of the most unmistakable kind.

At the request of the Council I have remodelled my original paper, with its two appendices, and endeavoured to bring all the facts of both series into a continuous narrative up to the present date. As regards the main points, the cases will, I believe, be found amply sufficient, but I am well aware that respecting some individual ones there is less detail than could have been wished. The peculiar conditions under which the inquiry has been conducted, the necessity for avoiding any steps likely to excite the alarm of the patients, and other circumstances to which I need not advert, have prevented me from keeping all the cases under such close observation as might for some purposes have been desirable.

FIRST SERIES OF CASES.

SYNOPSIS.—Twelve persons, mostly young adults, vaccinated from a healthy looking child.—Satisfactory progress of the vaccination in all.—Indurated chancres on the arms of ten of the vaccinated in the eighth week.—Treatment by mercury in all.—Rapid disappearance of the primary sores.—Constitutional symptoms in four of the patients five months after the vaccination.—The vaccinifer showing condylomata at the age of six months.

These patients came under my observation in the seventh week after vaccination. The suspicions of the vaccinator had been excited about a fortnight earlier, and he had applied to the Medical Officers of the Privy Council on the subject. It was on the advice of Dr. Seaton that I was requested to see the patients

and investigate the matter. It was with the permission, and indeed at the suggestion, of the surgeon in whose practice it occurred (the father of the vaccinator) that the facts were made known to the profession, and I cannot help expressing here my admiration of the moral courage with which this gentleman met a calamity which caused him the keenest distress, and of the anxiety which he displayed that the fullest use should be made of it for the public good.

On February 7th, 1871, a young surgeon in the neighbourhood of London applied at a public vaccine station for a supply of lymph. He was offered a healthy looking infant of four months old, then on the eighth day, and with five good vesicles. As he wished to vaccinate a considerable number of persons in the same house, he preferred to borrow the child rather than, as first proposed, to charge points, and an arrangement having been made with the mother, the child was at once taken to a private house where eleven young adults (shopmen and servants) were vaccinated from its arm. Four only of the five vesicles were used, and the testimony, both of the operator and of the child's mother, is that more than one, and possibly all, of them bled somewhat. Finally, a tube was charged, and with the lymph thus obtained, which is reported to have looked quite clear, two persons, a father and son, residing in another house, were immediately afterwards vaccinated. Thus we have a total of thirteen persons vaccinated. In all excepting one doubtful case the vaccination was second to successful performance of the same in childhood. In the doubtful case both arms were done, in all the others only one arm. In all excepting one instance the vaccination took, and the vesicles are believed to have gone through their usual stages. The patients were not under any close medical inspection afterwards, as none of them needed it, but it seems certain from their testimony that at the end of three weeks in all cases the scabs had fallen and small round cicatrices alone remained. At the end of a month, or from a month to five weeks, several of them applied for advice because the scars were again becoming sore, and at the expiration of two months it was quite certain that ten

out of the twelve had indurated chancres on their arms. Many of them had more than one chancre, and about half had enlarged axillary glands, whilst two or three suffered from febrile disturbance with roseolous rash. I will append to this paper some brief notes of each of the cases, but it will be convenient for the present to restrict our attention to the general facts as to the group, and to turn next to the vaccinifer.

Facts as to the Vaccinifer.

The infant had been seen by the public vaccinator, whose patient she was, and by the surgeon who borrowed her, and to them, to her own mother, and to those who were vaccinated arm to arm from her, she bore the aspect of excellent health. She was remarkably well grown, not in the least fretful, and had gone through the stages of her own vaccination perfectly well.

On April 5th, two months after the vaccination, she was brought to my house for examination. Her mother ridiculed the idea that she ailed anything. My attention was, however, at once attracted to a slight peculiarity in the tint of her skin and to the look of her face; and although it was strongly denied that she had ever "snuffled," yet when she was made to cry I noticed a nasal twang which was very suspicious. On having her stripped not a single spot of rash could be seen on the skin, but on inspecting the buttocks five small circular condylomata were discovered close to the anus, about which there could not be the slightest doubt. Her mother now admitted that she had been aware for a week of the existence of these sores, and had consulted a chemist about them, who had attributed them to teething. She said they had not been present more than a week, and repeated her assurance that the infant had not seemed in the least ill. I could not find in the mother herself any indications of syphilitic taint, nor obtain any history of suspicious symptoms. She looked pale and cachectic, as if underfed. She had been married about eighteen months, and this was her

first-born child. Her husband was a Frenchman and one of the Paris National Guard. I prescribed for the child some mercurial ointment, and was very desirous to keep it regularly under observation, but the mother would not bring it. A fortnight later (on April 19th) I sought it out at home. The child then looked more ill than when I first saw it; the condylomata were in the same condition. It had no rash. Its head was enlarging, and its mother complained that it was wasting away. She had not used the ointment, alleging that its father would not allow her to do so. I was never able to see the father of the child, although I used every endeavour; he was evidently unwilling to be seen, and his wife positively refused to give me his address.

About the existence of constitutional syphilis in the infant at the date of my examination (two months after the vaccination) there could not be any doubt, and scarcely any as to the taint having been an inherited one. The vaccination spots presented perfectly healthy scars, and there was not the slightest reason for thinking that the disease was introduced into the child's system at the time of its vaccination. Had such been the case it is almost certain that it would now present symptoms similar to those in the patients vaccinated from it, *i. e.* primary sores on the arm. There could be only a week's difference in the stage of the disease in itself and in those vaccinated from it. Instead of this we find the child presenting the ordinary symptoms of hereditary syphilis—condylomata, commencing marasmus, and hydrocephalus. That a syphilitic infant should appear to be in perfect health as far as external appearances are concerned is by no means unusual. "It is a mistake to suppose that syphilitic infants always present a withered 'old-man-like' aspect; in many instances, although manifesting specific local symptoms, they may grow well and remain plump and fat."¹ This occurs, I believe, with especial frequency when the child does not suffer from a skin eruption, and under such circumstances condylomata are not unfrequently the only symptom by which the existence of the taint is proved.

¹ 'Aphorisms, &c., on Syphilis.' By the Author. 1862.

There can, I think, be little doubt that in this instance it was the blood, and not the vaccine lymph, which was the source of contamination.

Two of those vaccinated wholly escaped, and as they were two of the youngest on the list, and mere boys, it is very improbable that their immunity was consequent upon their having had syphilis before. In those in whom chancres occurred nearly half of the vaccination punctures escaped. Now, I can see no other explanation of this immunity of some persons whilst others suffered, and immunity of some vaccination punctures in the same person in whom others were infected, than by supposing that the vaccine virus and the syphilitic virus were present in different fluids, and that it was possible to convey the one in all its vigour without necessarily conveying the other. It is important in reference to this point to note that the two individuals who have escaped were the two who were first vaccinated, since it is not improbable that the lymph which first flowed was unmixed with blood. I may add also that the third person vaccinated was the only one in whom both arms were done, and that one of his arms escaped whilst the second suffered. The conjecture may be permitted that it was when obtaining lymph for this patient's second arm that the operator first drew blood.

The success or non-success of the vaccination, as vaccination, seems to have had nothing to do with the induration of the scars. Some scars in which the vaccination vesicle had not "taken" became indurated, whilst many punctures which did "take" escaped. Owing to the patients not having been constantly under observation after the vaccination, there is a little uncertainty as to which vesicles were well-developed and which failed, since we are obliged to rely to a considerable extent on the statements of the patients themselves. There seems reason to believe that the vaccination failed in all the spots in only one individual, and he subsequently had several indurated chancres at the sites of puncture.

The period of incubation seems to have been very nearly the same in all the cases. Two of the patients, a father and

son, noticed that their scars were becoming irritable on the same day, the 18th of March, a little more than five weeks after the vaccination, and between two and three weeks from the cicatrization of the vaccine vesicles. In all the patients the spots were characteristically indurated when I saw them on April 4th, exactly two months from the date of the vaccination. It would have been of great interest to science to have allowed half of this group of patients to abstain from any specific treatment, but, on the other hand, it appeared a paramount duty to adopt at once the very best means for their recovery. On the 4th April they all commenced, with one exception, the use of mercury in small doses and the application of black-wash. In all the effect of the remedy upon the local sore was most definite. Many of them, at the date of my first paper, had become (after eleven days' treatment) quite soft; in the course of a week none of them displayed a degree of induration which would have been considered characteristic, and several which had been ulcerated were healed.

One important feature in this group of cases is the remarkably close similarity which they bear to each other. In no single instance was there any unusual degree of inflammation of the vaccine vesicle. In all, as far as the patient's impressions go, the vesicles went through a usual course, and in all a period intervened, before the development of induration, during which the cicatrix was quite healthy. As the patients were not at the time under medical inspection it is impossible to be accurate as to the precise day on which induration of the cicatrices began, but so far as can be ascertained there is reason to believe that nine out of the eleven began to complain of inflammation of the scar towards the end of the sixth week. At the end of the eighth week these nine patients had all reached the same stage. In the other two cases the progress was about a fortnight behindhand.

The characters assumed by the sores were, with some minor differences as to size, &c., remarkably similar. Ulceration occurred in all excepting two patients, and in

one of these two, out of three chancres, one did for a day or two ulcerate slightly. In one patient, a healthy, florid girl of 17, three glossy buttons of induration formed, but never passed into the ulcerative stage. It is not improbable, however, that they were arrested by the influence of mercury. Of those which ulcerated all took the circular form, and in all, in the first instance, the discharge was stated to have been "glutinous." They had all been dressed with water dressing for several days before I saw them, and had much improved in appearance; some were then secreting healthy pus, but most of them still showed deficiency of secretion. None of the patients were out of health at the time of the occurrence, but they varied a good deal as to temperament and degree of vigour. There is no reason to think that any one of them had suffered from syphilis before. About half of them complained that they had headache and felt more or less unwell during the time that the sores were indurating. One young man was confined to his bed with severe aching in the back, vomiting, and general febrile disturbance, all of which passed off in a few days. Most of them had more or less enlargement of the glands in the axilla, but in none did it occasion any material pain or inconvenience. In all but one mercurial treatment was commenced on the 4th of April, two months after the vaccination, and about a fortnight after the scars had begun to indurate, and the uniformity with which all the sores altered in character under its exhibition was most remarkable. In the two cases in which ulceration had not occurred the sores never passed beyond the stage of induration. The sores which were ulcerated when mercury was begun, in the course of about a week after its commencement began to discharge healthy pus and to show florid granulations. Most of them, as already stated, were healed within a fortnight, and after three weeks the majority were quite sound and almost free from induration in all. In all cases the mercurial treatment consisted in two grains of gray powder given night and morning, with the application of black-wash under gutta-percha tissue. About half of the patients showed slightly the influence of mercury on the

mouth, but none were particularly inconvenienced. In one case the patient did not come under treatment till ten days after the others, having, indeed, in the first instance, consulted a homœopath. In him the chancre attained a size twice that of the largest of the others.

The following paragraphs are extracted without modification from my first report (April 25th), as I have special reasons for wishing to preserve their original form.

"As already stated, none of the patients have as yet displayed any of the persistent forms of skin rash, nor have any shown positive ulceration of the tonsils. Several of them have had transitory but definite eruptions of roseola, and in several the skin of the abdomen and chest is slightly mottled. Three of them to-day display about the neck, face, and shoulders, a few lichenoid spots of doubtful character.

"It is to be feared that before long we shall have yet more definite evidences of constitutional contamination in some of these patients; but in the present stage I think we are quite justified in deducing the following conclusions from them :

"1st. That the blood of a child suffering from inherited syphilis can, if inoculated, transmit the disease with great certainty.

"2nd. That the result of such inoculation of blood will be an indurated chancre.

"3rd. That if multiple inoculations be practised, multiple chancres may be produced.

"4th. That a period of incubation between the inoculation and the first occurrence of induration about the prick will occur, during which the part may appear perfectly healthy.

"5th. That the period of incubation prior to the first specific induration will usually be about five weeks.

"6th. That it is quite possible for vaccine lymph and blood to be transferred at the same time, and for each to produce its specific results, the effects of the syphilitic inoculation occurring subsequently to those of vaccination.

"7th. That it is quite possible to vaccinate successfully

from a syphilitic infant in the stage of utmost potency as regards its blood, without communicating syphilis."

The following are some particulars respecting all the persons vaccinated in this series. The cases are arranged according to the order in which vaccination was performed.

No. 1. Master W—, a youth of 14. He was vaccinated in three places, all of which took and went through their usual course. No ill consequences followed. On April 8th, I examined his scars and found them pale and quite normal.

No. 2. W. N—, æt. 16. Only one of three spots took. No ill consequences followed. On the 8th of April I found the scar of the vesicle which succeeded pale and healthy.

No. 3. Mr. T. B—, æt. 20, a young man of fair complexion and somewhat delicate appearance. As he had no scars of a former vaccination, it was thought best to vaccinate him on both arms. This was accordingly done in three places on each; in two or three on each arm the vaccination took and scabs resulted. He left the establishment shortly afterwards, and at the time of my first visit I did not see him. Having obtained his address, he was subsequently induced to come to my house. This was at the end of two months after vaccination. He had then one large ulceration with indurated edges and prominent granulations in the middle (see sketch). This chancre, which was as large as a florin, had resulted from the confluence of two vaccination sores. He stated, as regards the vaccination, that the scabs fell within three weeks, and that the sores then seemed quite well. During the sixth week two of the spots on his left arm inflamed and became hard, and during the following week he had a good deal of febrile disturbance. He had an enlarged but softish gland in the left axilla. Mercurial treatment¹ was commenced in the end of the ninth week, and continued for two months. The chancre was quite healed in about a month,

¹ By "mercurial treatment" throughout this paper may be understood the careful use of black-wash applied to the sore three times daily and protected with oil-silk, and the administration internally of two grains of gray powder twice or three times a day according to circumstances.

but the scar remained hard and dusky. He had a few suspicious lichen spots in the thirteenth week, but nothing characteristic. He never had any sore throat, and his general health remained throughout good.

No. 4. Mary Jane L—, æt. 18. Three spots took and went through their stages. About six weeks after the vaccination all three became inflamed, and they subsequently indurated. On April 4th they were all indurated and superficially ulcerated (see sketch). There was an enlarged gland in the axilla, movable, but not very hard. During the preceding week she had had some febrile disturbance. Mercurial treatment was commenced at the end of the eighth week, and was pushed to slight pytalism. She subsequently had some diarrhœa and could not continue the mercury regularly. The chancres soon healed. In the thirteenth week she reported that she had a rash, which came and went, but I never saw anything positive. She was of strumous diathesis, and a large glandular mass in the neck, which had shown itself in the eighth week, persisted ever afterwards. In the middle of July, all specific treatment having been suspended for more than two months, she had a rash on the neck, fronts of arms, &c. It consisted of small, slightly scaly papules, of dusky colour. She had also symmetrical ulcers in the tonsils. Mercurial treatment was at once recommenced and the rash soon began to fade. The was seen a few days later by the Society's Committee. On August 1st all traces of the rash had disappeared, but the ulcers in the tonsils persisted. On September 4th she was seen by Mr. Smith, Secretary of the Committee. At this date she had no rash, but the ulcers in the tonsils were still characteristic.

No. 5. Caroline R—, æt. 24, stout and florid, was vaccinated in three spots, two of which took slightly and one well. After they had been for some time soundly healed, they relapsed about the 20th of March and became red and irritable. She had at this time backache and flying pains. There was no swelling in the axilla. Mercurial treatment was commenced at the end of the eighth week, and was

pushed to decided salivation at the end of ten days, after which she took only one pill daily. At the end of a month the sores were all healed and the scars soft. She had on several occasions shown a few suspicious spots about the neck, but nothing characteristic, and she had had no sore throat. Throughout she had complained a good deal of rheumatoid pains, &c., but she kept at her work. In the middle of July, at the same time as in the preceding case, a characteristic rash attended with ulcers in the tonsils showed itself. Mercury, which had been suspended for two months, was resumed, and the rash soon disappeared. On the 1st of August she was quite well, with the exception of two or three spots which persisted on her neck. In the beginning of September, however, she had a relapse of ulceration in one tonsil, but it was very slight. Her general health at this time was good.

No. 6. Annie W—, a florid robust girl, æt. 17. The three vaccination spots took well, went through their normal stages, and healed. On April 4th (eighth week) the outer one showed slight induration, but was not in any degree ulcerated. The other two were reddened, but not at all hard.

She said that they were redder than they had been a week before, and that they were beginning to itch. She felt perfectly well. Three days later all three spots had become slightly harder. (*Sketch now taken.*) None of them ever passed into open ulcers, and under mercurial treatment all induration disappeared in the course of three weeks. I believe she took the mercury afterwards very irregularly. No constitutional symptoms of any kind ever showed themselves.

No. 7. Lucy L—, æt. 20. All the four vaccination punctures took well, and healed in due course. Nothing followed until the last days of March (beginning of eighth week), when the two inner spots became red, hard, and irritable. On April 4th the two outer scars still showed no sign of irritation, but the two inner ones were of a dusky red, somewhat raised, hard, and covered with thin epidermic scale.

She complained that they felt sore. She had no other symptoms. No axillary bubo. In this case the chancres never ulcerated. Under the influence of mercury the induration disappeared. For a short time in the tenth week her tonsils were suspiciously inflamed, but she never had any rash. Cod-liver oil was given most of the time, as she was in delicate health, and had a cough.

No. 8. Mr. T—, æt. 20. Three vaccination places took, and the fourth did not. These scars remained quite sound until April 1st (eighth week). I saw him on April 8th, and found one of the scars inflamed, slightly hard at the base, and covered with a scab. The other three were quite quiet. He said that he felt well. There were some hard glands in the axilla. Mercury was at once commenced, and the sore, which had ulcerated, soon healed. The mercury never produced any ptyalism, and, excepting a little headache, he felt quite well throughout. On the 5th of May the scar was sound, but still hard, and the glands in the axilla could still be felt. My notes mention "some small spots on neck and shoulders, fairly characteristic." The spots alluded to had disappeared at my next visit. He subsequently remained quite well until the middle of July, when he had a general roseolous eruption, which, however, disappeared in a week when mercury was resumed.

No. 9. Mr. H—, æt. 22, of fair complexion, and delicate. Lymph was inserted at three places, and good vesicles developed at two. They all healed well, but about March 20th the inner one began to inflame. On April 4th, when I saw him, he complained of having felt dull and heavy during the last week. The spot which had inflamed was raised and hard. On each tonsil there was a slightly marked patch of suspicious appearance, but not actually ulcerated. Mercury was commenced at this date. The chancre soon healed. The throat was slightly sore for about a week, and after this, excepting some complaint of frontal headache, he had no symptoms. On May 5th the chancre, which had been healed for more than a week, scarcely showed any induration. He felt quite well, and had no rash. Mer-

cury was continued once a day for a month longer, and then disused.

No. 10. Mr. W—, æt. 18, a rather delicate young man of dark complexion. He was vaccinated in three places, but none of them took. The inner one inflamed a little, but soon healed. On the 22nd of March the inner one had again inflamed, and was becoming hard. On April 1st he felt ill, had backache, thirst, and headache; and on the 2nd a succession of slight rigors with frequent sickness came on. When I saw him on April 4th he was in bed on account of his backache and feverishness. There was an enlarged gland in his axilla, and the skin of his abdomen was a little mottled. Only one of the vaccination spots was affected, and it was exactly like those in the other cases—raised, hard, and inflamed. Nothing could be seen on his tonsils. On April 8th he was much better, having lost his backache. He stated that on the 7th his body and face were covered with a blotchy rash, but, with the exception of a very slight mottling of the abdomen, this had disappeared on the 8th. On the 5th of May he had congestion of the right eye and circumorbital pain, but no positive iritis resulted. At the same time he had a lichenoid eruption on shoulders, arms, and face, but as it was mixed with acne, to which he had been previously liable, it was not easy to be confident as to its character. On account of diarrhoea the mercury had been omitted.

No. 11. Mr. W—, aged 45, a married gentleman, the father of a healthy family, and who had never, at any time, suffered from syphilis. He was vaccinated in three places, two of which took, went through their stages, and cicatrized. The middle one of the three did not take. On or about March 18th all three inflamed, and when I saw them on April 4th they were all indurated and ulcerated. He had no enlarged glands, nor any other symptom. On April 8th his condition was much the same; he was taking mercury twice a day; the thermometer had been used regularly and had not shown any elevation of temperature. On the 11th the mercurial was omitted, as he was decidedly salivated. On the

14th two of the sores were quite healed and the other showed healthy granulations. After this he continued the liberal use of black-wash, but took no more mercury internally. From the 10th to the 24th his mouth was slightly sore, and the mercurial odour was perceptible in his breath. Subsequently he remained quite well as regards syphilitic symptoms until the latter end of June. We had sent him to the sea-side, as he had not regained quite his ordinary strength. Whilst there he rapidly improved, but a copious eruption came out on his scrotum, thighs, and scalp. He thought it had been excited by bathing. He returned to town three weeks later, and I saw him in the middle of July. His scrotum, penis, and the inner sides of his thighs were covered with flat-topped papules and patches of psoriasis of the most characteristic kind. He had no rash worth mention on other parts of the body, but his scalp, which was bald, was covered with small patches of porrigo. Under the use of a mercurial ointment and small doses of mercury internally both the scrotum and scalp rapidly healed.

No. 12. Mr. W—, junr., æt. 18, son of the subject of Case 11. He was of brown complexion and in tolerable health, but had been for years the subject of enlarged tonsils. Three out of four of his vaccination spots took, went through their usual stages, and healed. On the 18th of March two of the three spots which had taken had become a little inflamed and irritable, and during the next week they gradually indurated. He consulted his surgeon about them on the 24th, and on April 4th I saw him. The outermost of the three spots then showed a healthy cicatrix, but the inner and middle ones were inflamed, slightly raised, superficially ulcerated, and decidedly indurated at the base. Their condition is shown in a sketch taken at this date. He had no other symptoms. No definite glandular swelling. Mercury was prescribed, and under its influence the sores softened and healed. He was never positively salivated, but the occurrence of slight diarrhoea several times interrupted the mercurial course. Up to the present date he has not had any secondary symptoms, with the exception of a doubtful roseolous rash in the begin-

ning of May. He took mercury in all for about a month.

SECOND SERIES OF CASES.

SYNOPSIS.—*Unquestionable symptoms of constitutional syphilis in nine children who had been vaccinated from the same patient.—Suspicious symptoms in six others, and entire escape of a certain number.—Vaccinifer a fine healthy looking child, but with slight local symptoms indicative of inherited syphilis.*

On May 5th, 1871, two children were brought under the care of my friend and colleague, Mr. Waren Tay, on account of syphilitic eruptions. They were a brother and sister, aged respectively 4 years and 16 months, and in both the syphilitic rash was very definite. In searching for its cause Mr. Tay found that about seven weeks previously they had been vaccinated, and that the vaccination spots were at the present time unhealed, and with very decided induration at their bases. Mr. Tay now brought the cases to me, and I am indebted to his courtesy for permission to investigate the facts respecting them, and also for much help in doing so. We obtained from the mother of the children the name of the vaccinator, and on application to him were at once supplied with his vaccination register, and allowed to copy out the names and addresses of twenty-four other patients who had been vaccinated at the same time from the same vaccinifer. Nothing had occurred to excite the vaccinator's suspicions, not a single one of this series having been taken back to him on account of the unhealthy condition of the arm. On making inquiries at the houses of the patients, however, we found that no fewer than nine had chancres on their arms, and that six were suffering from well-marked and copious syphilitic rashes. Two of them had been under other medical care for these symptoms, but in not a single case had the real nature of the disease been suspected. I will state

seriatim the chief facts respecting the cases in this series, but it will be convenient first to mention those which concern the vaccinifer.

History of the vaccinifer.

I visited the child at its home, the parents having no knowledge of the object of my visit. I found it a stout, well-grown male infant, of seven months old. Thus, he would be four months old at the date of vaccination. His mother stated that he was selected as a vaccinifer from amongst several others, as being the most healthy present, and that his vaccination spots were very good ones. They healed afterwards quite well, and the scars remained sound. He still looked healthy, and was well grown and cheerful. Excepting a little transitory "tooth-rash," probably lichen, on the face, he had had no eruption. His head was decidedly large, and the fontanelles widely open. This had, his mother said, only been noticed for a few weeks. Latterly several neighbours had told her that he had "water on the brain." I inquired as to snuffles, and she replied at once and emphatically, "Yes, he has snuffled a great deal." There was no trace of rash in the child's skin at the time of my visit, but at the anus was a single small condylomatous patch just healing. This had never attracted his mother's attention. He was said to have had thrush. His mother was a young and healthy-looking woman, who had been married two years. I did not, of course, ask her any direct questions.

Immediately afterwards I called on the father of the child, and in answer to a direct question he denied very positively having ever been the subject of venereal disease. On a subsequent occasion he submitted to a personal examination at my house, and we failed to detect anything of a nature to cast suspicion on his denial. I saw the infant two or three times during the next six weeks, but no symptoms of a more definite character showed themselves. The condyloma soon healed, and, with the exception of a slight tendency to hydrocephalus, the infant at the time I last saw it might

have been regarded as a specimen of excellent health. As regards its condition at the date of the vaccination I may state that the parents of several of those vaccinated from it subsequently mentioned to me its very healthy appearance.

No trustworthy evidence could be obtained as to whether blood was or was not transferred in the act of vaccination. The vaccinator, who is a very able and careful surgeon, assured me that it was his custom to avoid blood-stained lymph, and several of the women who witnessed the proceedings told me that they did not observe any bleeding. In addition to the number of children vaccinated directly from its arm some tubes were also charged with its lymph. These tubes, having been mixed with others, could not be traced.

The following are the particulars of all the patients vaccinated from this vaccinifer.

No. 1. Arthur Edward T—, æt. 16 months, one of those first seen by Mr. Tay. He had been vaccinated for the first time on February 13th, and five of the punctures were successful. The spots healed, but subsequently became hard. When he applied to Mr. Tay in May the scars were decidedly indurated, but not ulcerated; there were enlarged glands in the axilla; he had symmetrical ulcers on the tonsils, and a moderately copious rash of mixed roseola and psoriasis on the trunk and limbs. He was treated by mercury, and his symptoms slowly disappeared.

No. 2. Elizabeth T—, æt. 4 years, sister of the above patient. She was vaccinated for the first time at the same date, and five of the punctures took well. They went through their usual stages and healed. Afterwards the scars inflamed and ulcerated. When she was seen by Mr. Tay on May 5th she presented superficial sores with slightly indurated bases, and covered with a good deal of scab on the seat of the vaccination scars (see sketch). The glands in the armpit were enlarged. She showed deep symmetrical ulcers on the tonsils nearly healed, and she had a copious rash of papules and small scaly patches on the body, the colour, arrangement, and general appearances of which were most

characteristic. This eruption was symmetrical, and occurred especially on the back of the neck, the bend of each elbow, and the thighs and hips. Under mercurial treatment the chancres healed and the rash disappeared.

No. 3. William C—, æt. 10 years. His was a second vaccination, but three of the punctures were followed by good vesicles. The vaccination spots were healed. He became the subject of general rheumatoid pains, and had a copious rash over the whole body. When seen by me at the end of the thirteenth week he had already been for several weeks under medical treatment. The vaccination chancres were just healed, but were still inflamed, indurated, of a dusky red colour, and covered with a dry papery scab. There was a gland as large as a walnut in the axilla. Each tonsil showed a well-marked gray-based ulceration. The rash, although evidently fading, was still abundant. It occurred symmetrically on the neck, arms, trunk, and thighs. It was copious both on the backs and fronts of the arms, and especially so on the outsides of the thighs. A sketch of his arm was kept.

No. 4. Eliza T—, æt. 14, a revaccination; four or five of the punctures took; the crusts fell in about a fortnight, and the scars remained sound for three weeks afterwards. Five weeks after vaccination they inflamed and became hard, and "a white skin came over them," but they never re-ulcerated. She had a painful lump in the armpit during the first week after vaccination, but it subsequently disappeared. During the twelfth week she first noticed an eruption on the chest, and at this time she had some cough and felt ill, as if she had taken cold. She was now placed under the care of a surgeon. I first saw her on May 17th, the first day of the fourteenth week. At that date her vaccination spots were soundly healed, but the scars were dusky and covered with a papery scale; none of them were indurated. There was a slightly enlarged movable gland in the armpit. She had symmetrical ulcers in the tonsils, with white borders. There was a sparing eruption of dusky lichen spots on her chest, chiefly below the nipples. There were a very few spots also

on the chest and upper part of the neck, but none on the arms. Up to this date the patient had taken no mercury.

No. 5. Maria H—, æt. 3; a first vaccination; four punctures took. When visited in the fourteenth week she was found to have symmetrical ulcers in the tonsils, a slightly enlarged gland in the axilla, and an eruption of dusky psoriasis on the back and outer sides of the thighs. One of the vaccination scars was slightly indurated and dusky, with a thin papery scale; the others were sound. The rash had only been noticed for a few days. The child had been for some time under the care of a surgeon for "inflammation of the lungs." Up to this date the child had taken no mercury, and the treatment afterwards was conducted with extreme irregularity. On September 6th, after an interval of two months, during which the child was lost sight of, it again came under care on account of condylomata at the anus.

No. 6. Eliza M—, æt. 15; revaccination; four places took. On May 16th, end of the thirteenth week, the sores had only just healed, and their scars were slightly indurated, dusky and covered with a dry scale. There was a slightly enlarged gland in the axilla, and she had a few scaly papules of dusky-red colour on the upper parts of the legs, but none elsewhere. She was florid and in good health.

No. 7. This patient, Hannah S—, was not found.

No. 8. Elias W—, æt. 1 year; a first vaccination; four punctures took. At the end of the twelfth week the sores were not healed, but were covered with porrigo scab. There was, however, no evidence of syphilis, and the child had been the subject of porrigo before vaccination.

No. 9. Mary Anne O—, æt. 11; a revaccination; five places took. The sores healed very slowly, and had only just closed at the end of the thirteenth week. Their scars were then dusky and red, with a thin dry scale and slight induration. There were a few dusky papules on the back of her neck, and one in front of the right elbow. The patches were either smooth and glossy or covered with a thin scale. There was a large indolent swelling in the axilla. The child had not been out of health, and no treatment had been adopted.

No. 10. Amelia O—, æt. 5 years ; first vaccination ; five places took. The sores healed in about five weeks, and the scars, when examined at the end of the thirteenth week, were scaly and somewhat congested, but not indurated. The axillary glands were slightly enlarged. She had no eruption excepting some patches of dry eczema on the face. It is probable that she was not syphilitic.

No. 11. Frances C—, æt. 4 years. I do not know more respecting this child than that the vaccination sores healed slowly, and that during the eighth week she had a rash of red pimples. She was not seen.

No. 12. Alice C—, æt. $5\frac{1}{2}$ years, sister of the above. Facts as to vaccination very similar.

No. 13. Henry C—, æt. 8 years, brother of the above. On May 8th, end of twelfth week, two or three of his vaccination spots were still unhealed and covered with porrigo scab. He was reported to have had a rash like his sisters, but neither in him nor them was there anything positively syphilitic.

No. 14. Emily Julia J—, æt. 6 ; first vaccination, five places took. The places healed up at the end of the third week, but subsequently inflamed and reopened. On May 17th, fourteenth week, the four lower spots were healed, but hard, glossy and dusky. The upper one was covered with a dry pus-scab and its base, as large as a shilling, considerably indurated. She had an enlarged gland on the border of the axilla. The lower part of the chest, the whole of the abdomen and the back was covered with a lichenoid rash, and there were a few spots on the front of the elbows and on the thighs. The rash had probably been out about a fortnight. There were symmetrical ulcers in the tonsils, and she had been low-spirited and ailing. Mercurial treatment, one grain of gray powder twice a day, was commenced on the 17th. On the 30th all traces of the rash and of the ulcers in the throat had disappeared, and she was in good health. The vaccination scars were still dusky and somewhat indurated.

No. 15. Alfred J—, æt. 9, and brother of the above. A first vaccination ; five places took, and all healed during

the third week. They afterwards inflamed and reopened. In the beginning of the fourteenth week the scars were dusky, and there was an enlarged gland in the axilla. He had no rash of a positive character, but a suspicious mottling of the skin of the abdomen.

No. 16. Annie J—, æt. 3 years, sister of the above. All the four vaccination punctures healed well in the usual time, but subsequently reopened. An abscess formed in the arm-pit and broke. It was said that she had scarlet fever soon after the vaccination. At the beginning of the fourteenth week all the sores were well healed, but the scars were slightly dusky. She had no rash.

A young woman who was vaccinated from this child suffered no ill consequences.

No. 17. Herbert D—, æt. 5 years. In this case nothing unusual occurred.

No. 18. Alfred George H—, æt. 1 year. In this, as in the preceding, the vaccination was successful and without any untoward result. Both of them were first vaccinations, and in each some places took.

No. 19. Eliza C—, æt. 16 months. In this instance the vaccination, first, was not successful, but nothing followed it.

No. 20. Rose Jane B—, æt. 3 months. I did not succeed in obtaining any information about this child, and the same remark applies to the three following cases.

No. 21. Rosina T—.

No. 22. Daniel C—.

No. 23. John C—.

No. 24. Caroline W—, æt. 13 years, a revaccination ; three places took. The sores never quite healed. About the fifth week they inflamed considerably. An abundant eruption appeared in the eighth week, and at the same time she failed in health, lost her appetite, and had pains in her limbs. When seen in the beginning of the fourteenth week she had a large open sore on her arm, with indurated elevated edges, and prominent florid granulations in the centre. This sore was formed by the coalescence of two ; a third was healed, but indurated. She had symmetrical excavated ulcers in the

tonsils, and enlarged glands in the axilla and back of neck. She had a copious eruption of dusky flat-topped papules, occurring on almost all parts excepting the face, and there was also a single, round, condylomatous patch on her tongue. A sketch of her arm was taken on May 19th, and on the same date she was seen by many surgeons. Mercurial treatment was commenced on May 17th. On May 31st she was rapidly getting well, the rash having almost disappeared and the sore being nearly healed. On June 21st the sore on the arm was healed, but its scar was dusky and covered with scales; the only constitutional symptoms which remained were a few spots on the neck and the condyloma on the tongue. Subsequently this child got quite well, but she had to take mercury for more than two months. Towards the end of July she was again under care for a small condyloma at the anus, but it soon disappeared under treatment.

No. 25. Harriet W—, æt. 15 years; revaccination; successful; no ill consequences.

No. 26. John R—, æt. 8 years. A successful first vaccination. No ill consequences.

Note.—In the preceding pages I have several times alluded to sketches taken. I possess a series of drawings (by Mr. Burgess) illustrating different forms of the vaccination chancre, the character of the rash, &c. These I shall at any time have much pleasure in showing to any one who may wish to see them.