

OBSERVATIONS
ON THE EFFECTS OF
VARIOLOUS INFECTION
ON
PREGNANT WOMEN.

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ON THE EFFECTS OF
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PREGNANT WOMEN.

IN April 1793, I was requested to direct and attend the inoculation of the poor people in Weybridge, Walton, and other places adjacent to Oatlands. On this occasion, I had under my care two hundred and fifteen patients; who were inoculated in May and June last by Mr Norman, apothecary

cary to the family of his Royal Highness the Duke of York. I attempted to avail myself of this opportunity, to make observations with a view to determine the circumstances which render the inoculated small-pox more or less fevere; for the most experienced and judicious physicians do not agree with respect to many of the circumstances which have been generally alleged to influence this disease. But the observations in the present paper, relate only to the small-pox in pregnant women.

The action of the variolous matter on the animal œconomy, is an interesting object of contemplation to the cultivators of natural science, as well as necessary to be understood by physicians. It is supposed, that the following statement of cases, and observations, may tend to elucidate a part of this subject, which has been hitherto little investigated.

C A S E I.

Mary Sheers, twenty-five years of age, the wife of a labourer, a moderately strong and healthy woman, had born four children, the youngest of which was two years of
age.

VARIOLOUS INFECTION.

age. According to her reckoning, she was now in the beginning of the eighth month of her pregnancy. Having been directed to abstain from much fermented liquor, and much animal food for about a week; and having during this time taken a mildly operating cathartic, she was inoculated in each arm on the 7th of May. The patient was ordered to continue to observe the regimen just mentioned, and also to expose herself much in fresh air.

On the 11th of May, the fifth day including the first after inoculation, both arms were inflamed in the manner they usually are when the infectious matter produces the small-pox. Although there was no complaint made, it was thought advisable to draw off ten ounces of blood, which was very fizy.

On the eighth day after inoculation, febrile symptoms appeared, namely, sensations of coldness and heat alternately, great lassitude, pains in the head and back, and frequency of the pulse.

On the ninth day, the feverish symptoms

OBSERVATIONS ON

were more severe; and on this day also some eruptions appeared.

The day following, namely, the tenth, the fever had almost entirely disappeared: a great number of eruptions were seen. The eruptions, in number perhaps twelve or fourteen hundred, gradually increased to their usual size, in the distinct and regular small-pox; then suppurated; and on the fifteenth day were almost all drying up. No fresh symptoms had supervened, except a little difficulty in deglutition, and a slight sore throat on the twelfth, thirteenth, and fourteenth days after inoculation.

By the twenty-third day, the scabs from the small-pox had fallen off, and the patient was quite well. Notwithstanding the number of pustules, the patient had not been confined to her bed for more than one day before the eruption; but I had reason to believe that she had not been obedient to directions, for she had kept herself in hot and confined air.

The subject of our observation continued well till the 4th of June, which was the twenty-ninth day after the inoculation, and
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the twenty-first after the attack of the eruptive fever : and then she was delivered of a full-grown dead child. To judge from the woman's feelings, her foetus had been dead four or five days before it was brought into the world.

On the 6th of June, Mr Keate and myself were at Oatlands ; and hearing that this child was born with the small-pox upon it, but that it had been buried two days ; by permission, we took up the body, in order to judge, by actual inspection, of the appearances of so curious a fact. Neither of us expecting the account given to be founded on any strong proofs, we were not a little surpris'd, the instant we saw the foetus, with the numerous pustules upon its skin, resembling, exactly, those of the small-pox, about the fourth day after the eruption in the favourable kind. These eruptions differed only in being flattened, from the small-pox in the living subject. There must have been, I think, in number, about four hundred. Presuming that putrefaction had begun to take place, it seem'd probable, that the matter of these pustules would not be
infectious :

infectious: but, as no serious consequence was apprehended from the trial to inoculate with it, Mr Keate collected a little of it upon a lancet.

Mr Keate informs me, that on Saturday, the 14th of June, he inoculated with the matter of the dead fœtus, a girl of about nine years of age, from No. 42, South Molton Street. There was not the least reason to suppose she had gone through the small-pox.

Mr Keate observed, that inflammation came on in the part inoculated, in two or three days, as it usually does when the infection produces the disease: and, that on Wednesday, the 19th of June, the fifth day after the insertion of the matter, there was a pretty extensive circular inflammation, and a small vesicular tumour of the arm, where the puncture had been made. Mr Keate observed the inflammation and tumour to increase for several days farther.

On Sunday, the 23d of June, the ninth day after the infection, the patient called upon me. I could not discover any disorder of the constitution in general; nor did I
learn

learn that she had been affected by the slightest febrile complaints. There was, however, a tumour as large as a pea, full of matter, upon the part which had been punctured, and a circular inflammation about this pustule. The aspect of the arm was exactly that of a part infected by the variolous poison, where eruptions are present.

On the Tuesday following, now the eleventh day after inoculation, Mr Keate observed the inflammation to be upon the decline, and the pustule beginning to dry: therefore he conjectures that the disease was at its height the day before, that is, Monday the tenth day after infection: for, in a few days, the patient got quite well; a crust or slough leaving a scar, as after inoculation where variolous pustules had appeared. As there was no observable fever or eruption in this case, Mr Keate inoculated this girl twice within six months afterwards, and at each time two other children with the same kind of matter on the same lancet. The two latter went through the disorder in the regular way; but, on the former, these inoculations had no effect. I also again inoculated the girl on whom the matter from the
dead

dead foetus had been tried; but, as before, no inflammation or swelling ensued: nothing followed but a red line, or red spot, for a day or two, according to the scratch or puncture that was made. In course, the only scar remaining, was from the first inoculation with the matter of the dead foetus.

Mr Keate observed, that, as in several cases of inoculation, in the beginning of June last, local effects only were produced, as above described, he could not help suspecting that the air at that time, which was during very hot weather, had some influence in rendering the small-pox so mild. On inquiry of several practitioners, and from the cases of natural and inoculated small-pox, which fell under my care during the hot weather last Summer, I was well satisfied that this disease was not more violent, but perhaps less severe than usual; provided the patients admitted were exposed to a succession of fresh, although hot air.

Perhaps it may be just worthy of notice, that the husband of Mary Sheers was inoculated, and two of their children, at the same time with herself; that he had the disease slightly, having only twenty eruptions; that one of
the

the children had also only twenty eruptions ; and that the other child had inflammation and suppuration of the part inoculated, but no eruption, nor, I believe, fever : but we have seen, that the mother had a pretty numerous crop of pustules, as well as her foetus.

C A S E II.

Mary Spoon, thirty-two years of age. She had six children, the youngest of which was two years old ; and supposed herself to be in the sixth month of pregnancy. She was inoculated in one arm on the 4th of June. The same regimen and medicines were prescribed as for the above patient, Mary Sheers. The inoculated part became inflamed, and swelled in the usual manner when the variolous matter applied produces the small-pox. And symptoms of fever appeared on the 12th and 13th of June, viz. on the ninth and tenth days inclusive from the day of the inoculation. The eruption began to come out on the 15th of June, or the eleventh day after the inoculation. She had a great number of pustules ; at least, fifteen hundred, or two thousand : but there was no secondary fever ; and she went through the stages of sup-
puration

puration and desiccation, without suffering considerably, or having any unusual symptoms.

This woman enjoyed good health during the rest of her pregnancy; and was delivered the beginning of October of a healthy full-grown child. It was inoculated in both arms when about eight weeks old, by Mr Norman, with matter from a subject in the same room with it. The arms were in a few days seen inflamed, in the manner they most frequently are when patients are infected. The child sickened on the eighth day; and at this time the parts inoculated were swelled, and there was a little suppuration in them. No eruption ensued. On the twelfth day, the inflammation had greatly abated, or almost disappeared. On one arm, in the part inoculated, there was a round hard scab; and on the other arm, a crust, from the inoculated part, had sloughed off, and left a cicatrix. In a few days more, the dried scab fell off from the arm on which the crust had remained longest; and it also left a cicatrix.

As there had been no eruption, and as, unfortunately, the opportunity was lost, of taking matter from the suppurated parts, no
other

other way remained, of determining whether the child had been infected, but that of again inoculating it. This I did, with fresh matter applied to both arms, on the 2d of January last. I examined the child on the 6th ; but, so far from any inflammation having taken place, there was scarcely a vestige of the punctures remaining ; nor was any thing seen afterwards, but a red mark in each of the parts pricked by the lancet. At this time, the scars from the first inoculation were as distinct as ever ; but no marks remained from the second inoculation.

The numerous records of inoculation for the small-pox, contain but little information concerning the effects of it in the advanced periods of pregnancy. And it seems highly probable, that not much would have been known of inoculation in the earlier periods of pregnancy, if the subjects had not concealed, or been ignorant of their being in this state. The opinion, that it is most dangerous to inoculate in every stage of impregnation, appears to be founded on reasoning, and extensive experience of the fatality of the natural small-pox, during the
whole

whole time of utero-gestation. But from a pretty considerable number of instances, which I can adduce, it seems that the inoculated small-pox, within the sixth month of pregnancy, is very seldom fatal to the mother, although it very frequently kills the foetus. Hence, I apprehend, the practitioner, who should not inoculate in these states of pregnancy, under the circumstance of unavoidable exposure to infection, would be deemed as unskilful, or culpably timid, as he would be accounted ignorant, or rash, who should inoculate in the absence of the circumstance of present infection. On this ground, the justification of my practice, in one of the above two cases, is founded: namely, in that of Mary Spoon, who was a little more than five months gone with child. And, with regard to the other case, in which the woman was in the eighth month of pregnancy, although I then knew of only one instance of inoculation at so late a period, viz. a case by Mr Quier, which terminated favourably, yet I considered the practice to be justifiable; because, in about twenty cases, to which I can refer, of the natural small-

pox,

pox, under similar circumstances of pregnancy, the disease proved fatal to three-fourths or four-fifths of the women, and to a still greater proportion of the foetuses. These two cases, then, may serve as useful data in practice, in judging of the propriety of inoculation in the two last months of pregnancy.

With regard to the small-pox having taken place before birth: In one of the cases above related, the woman was delivered of a foetus with eruptions upon it, exactly like those of that disease; and the effects of the matter of these eruptions on a person who had not had the small-pox, afforded a strong, if not an unambiguous proof, that this infectious disorder took place before birth. I remained, however, in a state of hesitation, with respect to the infectious nature of the dead foetus, until I had well considered the circumstances of the case, and compared this case with those of the same kind which are on record, or have fallen under the observation of other practitioners. The evidences of a disease being the small-pox, seem to be the following:

1st, Certain symptoms and appearances, observed only in particular stages of the disease.

2^d, Certain symptoms, which occur in succession.

3^d, Scars in the skin after the disease.

4th, The constitution not being, after the disease, susceptible of the small-pox from the insertion of variolous matter.

5th, The matter of the eruptions producing the small-pox in other persons.

Now, as the small-pox may take place, and the peculiar symptoms, and symptoms in succession, not be present, nor scars be left, and as the other proofs are equivocal, or not in every case present, it follows, that cases may occur, in which it is impossible to determine the question at issue beyond the reach of doubt. For, even the last proof mentioned is sometimes undecisive, as I will make appear by two instances. Mr Dawson relates, in the third volume of the Transactions of the College of London, that on the seventh or eighth day after inoculation, he took matter from the places of insertion of two children, who had no observable fever

erupted : And, by inoculation of nineteen persons with this matter, there ensued in all of them, inflammation, eruptive fever, and apparently variolous pustules.

The two children, whose matter had infected these nineteen persons, were inoculated a second time; when, besides the usual inflammation and suppuration of the parts of the incision, a fever came on, succeeded by seemingly the true variolous eruptions, as in the most regular small-pox. Dr Leake has published a case, on the authority of Mr Head, in which variolous matter applied to himself, who had certainly had the small-pox, produced inflammation and suppuration in the part inoculated; but there was no fever or eruption. The matter, however, of this abscess produced, by incision, in a person who had not had the small-pox, inflammation, eruptive fever, and pustules, as in the most regular kind of small-pox. Dr Rush mentions an instance of the same kind in the London Medical Observations and Inquiries, Vol. V. p. 40.

To remove all ambiguity, seven persons were inoculated with the patient's matter

in Mr Head's case ; and they all had the peculiar symptoms and succession of stages of the regular small-pox.

If these facts had not been credited by the most judicious practitioners, because they are confirmed by their own observations, I should not have brought them forward on this occasion.

I return to my remarks on the case of Mary Sheers.

She was delivered, as hath been stated, when eight months, and perhaps two weeks, gone with child of a dead fœtus, covered with pustules of such an appearance, singly considered, as probably have only been seen in the small-pox ; and I am authorized to affirm with confidence, that such pustules, in such a number, have been seen in no disease, but that which they exactly resembled, namely, the small-pox. Strong confirmation that these were variolous pustules, is afforded by the circumstance of the mother having had the small-pox at such a period before parturition, as to have infected the fœtus, and for the disease in it to have made the progress manifested by the appearances on its body ; assuming, however, that the
stages

stages and periods of the small-pox are the same in the womb, as in the natural way, in the air.

The variolous nature of these eruptions in the dead child, is further proved by analogous cases; for such pustules, and in such a number, have been seen on the birth of the foetus *only*, in those cases where, like the present, the mother had a short time before certainly had the small-pox.

Farther evidence is afforded by the inoculation with the matter of this dead child. And, if the effects were not such as to remove all ambiguity, there having been no observable fever or eruption, they were at least such, as to yield a strong confirmation of other proofs.

Supposing the foetus, in this case, to have had the small-pox before its birth, and that the progress of it was as in the natural way, the child could not have been infected by the matter with which the mother was inoculated, but might by the infection generated by the constitution of the mother. It does not seem unreasonable, or inconsistent, to calculate, that the foetus was infected on

the first day of the eruptive fever of the mother, which was the eighth day after inoculation; that in ten days farther, its whole constitution was affected by the eruptive fever; that during two days more, the eruptions came out; and that it lived four days after the first appearance of the eruption. The child, therefore, probably, died on the sixth day after its constitutional affection, and the twenty-sixth day after the inoculation of its mother, which was the 31st day of May, or 1st of June; and after remaining four days dead in the womb, it was brought into the world, in the condition above described.

Although, in the case of Mary Spoon's child, we had not the decisive, and unequivocal proof, of the constitution being infected, from the appearance of variolous eruptions, the other proofs leave very little doubt that the small-pox was really produced by the first inoculation: for inflammation ensued in the usual manner and time, as in the small-pox; and tumour and suppuration followed, by scars in the inoculated parts, as well as febrile symptoms, probably on the

eighth

eighth day. This succession very rarely, or perhaps never, happens, except in the small-pox, whether eruptions be present or not. But our doubts are almost all removed, by the variolous matter being applied twice afterwards, without producing any effect. We may add, as a farther proof, that there is not on record a single well authenticated case of the small-pox taking place in the uterus in the sixth month of pregnancy.

How very slight the small-pox was in this infant! All, however, but one of the rest of the family inoculated in June last, had it with rather severe, and some of them with dangerous symptoms. At that time, this infant's mother had a thousand, or more pustules; its sister, aged two years, had perhaps as many; another sister, four years of age, had above two thousand eruptions; a brother, aged seven years, had above five hundred pustules; another brother, eleven years old, had only about twenty-one pustules; a fifth child, a sister, nine years of age, had a thousand, or more; a sixth child, a sister, six years old, had five hundred, or more; the father, aged thirty-six years, had

only twenty eruptions, but was very ill above a week before, and during the eruption, so as to be unable to continue his employment as a labourer.

On the presumption that the subject of the present paper may not be uninteresting, I shall, in the next place, give a brief statement, with some remarks, on the cases which are recorded, and which have fallen under the observation of my medical friends, as instances of the infection of the unborn foetus with variolous matter. For, by bringing the whole, or the greater part of the facts relative to this subject into review, the judgement may be exercised with more ability on the cases I have related, and on the question, Whether, and under what circumstances, the foetus in the womb is susceptible of being infected?

CASE I.

Amongst the epistles of Bartholine, is one written in 1657, containing the following case, which I relate in the author's own words:

“ Mulier

“Mulier 38 annorum paupercula, cum uterum gereret, et in alvo materna foetus adhuc instrueretur ad exeundi patientiam, de gravitate totius corporis conqueritur, premiatur pandiculatione, cordis palpitatione, pruritu narium, &c. erumpunt variolæ in corpore fundique: mox cum instaret partus hora, infantem edit variolis per tenerrimum corpus æque tam multis contaminatum; qui, post sani bap̄tismatis acceptum sacramentum, obdormiebat: mater autem tertio die post exhibat mortalitatis sensus.”

Remark.—It is not at all probable, from experience, to suppose, that in this case both the mother and child had a disease resembling the small-pox, but which was in reality a different disease. The fatality of the natural small-pox, in the last month of pregnancy, both to the mother and child, is confirmed by subsequent experience. The foetus was born with the eruption upon it, and therefore it was infected in the womb. But the observation is too defective, for the account in words of too vague a meaning, to know precisely the stage of the disease of the

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the mother and child at the time of parturition. This remark applies also to a case of the same kind by Hildanus, another by Dolæus, and that by Fernelius; and yet another by Castro.

CASE II.

In the year 1713, Mr Derham, F. R. S. upon the authority of a midwife, gave an account to the Royal Society (Philosophical Transactions, vol. XXVIII. p. 165.) of a woman, who, when in a very advanced state of pregnancy, had the natural small-pox very mildly; but, while taking strong purgatives, as soon as the disease was over, the foetus, according to her feelings, died; and in five days after its death, she was delivered of a dead child, whose skin had upon it a vast number of the suppurated small-pox.

Remark.—The small-pox eruptions, when very numerous, and full of matter, are so very unlike any other known disease, as not to be easily mistaken by a nurse or midwife; and the delivery took place after the disease in the mother, consistently with the action
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of the infectious matter upon the foetus, as in several other cases.

C A S E III.

An account is given, in 1749, by Dr Mortimer, Sec. R. S. (Philosophical Transactions, vol. XLVI. p. 233.) of a lady who, when within a fortnight or three weeks of her reckoning, had held a conversation, at the distance of thirty or forty yards, with a person then in the small-pox, in the state of maturation. In a fortnight after this interview the pregnant lady was delivered, and her infant was in a day or two covered with eruptions, which proved to be the small-pox, of which it died before the period of maturation. The mother had no complaint or eruptions; and she had had the small-pox long before.

Remark.—I apprehend that practitioners in general will not conclude, that in this case the foetus was infected in the womb; because many hundreds of pregnant women in England yearly are exposed to the influence of the variolous infection, under much more favourable

favourable circumstances for its action, than in the present instance ; and yet there is no parallel to this case, I believe, upon record, nor has any parallel been heard of. Besides this, the eruptions had not suppurated, and perhaps were not numerous. They might probably be from a different disease ; or if from the small-pox, the source of the infection was not that alleged. Much as this case stands in need of confirmation, the authority for it was so respectable as to require my notice.

CASE IV.

In 1747, Dr Mead, in his treatise De Variolis, relates the case of a lady, who, in the seventh month of her pregnancy, had the small-pox. On the eleventh day of this disease she was delivered, and her infant, when four days old, had a fever with eruptions, which Dr Mead concluded was the small-pox, although it died the evening of the first day of the eruption.

CASE V.

Dr Mead, in the publication just mentioned, informs us (from memory), that a
 woman,

woman, towards the close of her reckoning, (who had long before had the small-pox, but after attending, during pregnancy, a person in this disease), was brought to bed of a dead foetus, covered with variolous pustules.

Remark.—For reasons given in the remark on Dr Mortimer's case, this also stands in need of confirmation: and we have a better right to arraign the accuracy of Dr Mead; because, in the same page in which he states this case, he misunderstands, or misconstrues, a case of Mauriceau, with regard to a child going through the small-pox in the womb, as remarked already by Sir George Baker.

CASE VI.

In 1749, Sir William Watson (See Philosophical Transactions, vol. XLVI. p. 239.) published the case of a woman far advanced in pregnancy, who had laboured under the small-pox a long time before, who, during this pregnancy, performed the duty of a nurse to her servant in the natural small-pox; and in a month after this attendance,

was

was brought to bed of a child that had about forty scars upon its body, like those from the small-pox. This child (a girl), and her brother, were afterwards inoculated at the same time. The brother had inflammation of the parts inoculated, eruptive fever, and eruptions, as in the most ordinary small-pox; and the girl, born with pits on her skin, had inflammation and suppuration in the parts inoculated, in the same manner as her brother, and a general indisposition, as in the undoubted cases of small-pox, but no eruptions. Sir William concludes, that this girl had gone through the small-pox before her birth; and Camper and Van Swieten coincide with him in this conclusion.

Remark.—I confess that I cannot coincide in opinion with this most experienced and accurate observer. But his own observations, I trust, afford me ample justification. In his excellent tract on Inoculation he observed, and the observation might be confirmed by almost every person of experience, that he had had “scores inoculated a second time without effect, where there had been

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been only *one* pustule, or where, *without pustules*, the punctures have been turgid and inflamed; and in no one instance was there a subsequent eruption; nor have the punctures a second time put on the appearance they did at first, but have always healed, as such slight punctures usually do, when no variolous matter has been inserted." Now, these very appearances, without eruptions, took place in the child born with scars upon it; and as such scars are produced by several other diseases besides the small-pox, of which an instance fell under my own observation a few days ago, I am compelled to conclude, that it was most probable the foetus had not the small-pox before birth, but had by inoculation afterwards.

C A S E VII.

The next case I have to mention, is also furnished by the observation of Sir William Watson. A woman, on the ninth day of the natural small-pox, was delivered of a child, which, on the eighth day after its birth, had variolous eruptions: therefore
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the author concluded, that it had been infected by the mother while in the womb.

Remark.—This seems to be the most reasonable conclusion, because subsequent experience has shown, that, except by inoculation, the infection scarcely ever acts upon the constitution in general in the space of eight days after its application.

C A S E VIII.

Dr Rosen von Rosenstein, has related, that, about the year 1756, a child had crusts and scars of the small-pox upon its body, when it was brought into the world; for the eldest son had the small-pox a little before this was born. All the other children got the small-pox six years after that, except this, who certainly had had the infection already in its mother's womb.

This case is so very ambiguous, that I should not have stated it, if it had been related by a less respectable physician than Von Rosenstein.

C A S E IX.

Baron Dimfdale, in his Treatise on Inoculation, in 1766, states, that a woman with child was inoculated, and had a small crop of pustules; that in nine weeks afterwards she was brought to bed, at the full time, of a living child, with distinct marks of the small-pox upon it.

Remark.—Perhaps it may be regretted, that our doubts were not removed by inoculating this child.

C A S E X.

In December 1776, the case of Mrs Ford occurred, which is stated by Mr Wastall, and communicated by Mr Hunter in the Philosophical Transactions, vol. LXX. p. 128. The small-pox seized this woman when far advanced in pregnancy; and on the twenty-third day after the eruption, she was delivered of a dead child, covered with eruptions, which Dr Leake, Dr Hunter, Mr Hunter, Mr Cruickshank, Mr Falconer, and Mr Wastall, considered to be the small-pox in the state of suppuration. Dr Hunter, it is stated, C thought

thought the eruption so like the small-pox, “that he could hardly doubt;” but said, “that in all other cases of the same kind he had met with, the child in utero escaped the contagion.”

This case is very similar to that of Mary Sheers, which fell under my observation; but her's was the inoculated small-pox, and Mrs Ford's the natural sort.

C A S E X I.

Is that published in 1781 (Philosophical Transactions, vol. LXXI. p. 372.) by Dr Wright. A negro woman, a fortnight after the eruption of the small-pox in the natural way, was delivered of a child with eruptions like those of the small-pox on the eighth or ninth day in favourable cases. The child had many eruptions, and died in three days. The mother had a very small number of pustules, and soon recovered.

C A S E X II.

In 1781, a case was published by Dr Bland, in the London Medical Journal, vol. II. p. 205. of a woman who, in the seventh

seventh month of pregnancy, had the confluent small-pox. Six days after the turn, and eighteen days after appearance of the eruption, she was delivered of a dead child, covered with the small-pox, full of matter, and seemingly arrived at maturity. The mother supposed her child had been dead five or six days before the delivery.

C A S E XIII.

In 1784, a case was published in the Medical Journal, vol. V. p. 399, from Mr Roberts, of a woman who was inoculated in November 1783. She was in the ninth month of pregnancy. The infection took place with the usual appearances. When the eruptions were drying up, she was seized with rigor and other symptoms, and felt as if the child then died, of which she was delivered the day after, as was expected, dead, and also covered with seemingly variolous eruptions.

C A S E XIV.

In a general inoculation at Painswick, in 1785, of which there is an account in the

7th volume of the Medical Journal, a woman, nearly eight months gone with child, had the inoculated small-pox. In about four weeks from the time she was inoculated, she fell into labour, and brought into the world a dead child, with about thirty pustules upon it. The foetus, according to the feelings of the mother, had been dead five or six days.

CASE XV.

The account of this case, by Mr Lynn, was read at the Royal Society in February 1786; but the Committee not thinking proper to publish it, this valuable, and perhaps only decisive instance of the small-pox in the womb would have been unknown by the public, if Mr Lynn had not printed his paper, in August 1786, as read at the Royal Society. The fact in this case is also truly satisfactory, because it is attested by a man distinguished for superior accuracy and skill in his profession. I shall give the account of this case in the author's own words, as any other representation of it would be less honourable to him, and less useful to the public.

“ In

“ In November 1785, the wife of Mr Eve, a coachmaker in Oxford-Street, being then in the eighth month of her pregnancy, was seized with rigors, pain in the back, and other febrile symptoms. In two days time, the disease showed itself to be the small-pox; and though the pustules were of the distinct sort, yet they were uncommonly numerous. On the eleventh day, they began to turn; and on the twenty-second day her labour took place, which, according to her reckoning, was a fortnight before the regular period; that is, when she was advanced in her pregnancy eight months and two weeks.

“ The child, at the time of its birth, was covered with distinct pustules all over its body. They did not appear to be full of matter till three days after; at which time I took some of the pus upon a lancet, from one of the pustules on the face. With this lancet I afterwards inoculated, on the 2d of December 1785, a child of Mr Chaters, in Church-Street, Soho, in both arms. On the 7th, the inflammation began to appear in each arm, and continued daily increasing till the 11th of December, when the

child sickened, and was affected with all the symptoms which usually precede the eruption. On the 12th the sickness and fever abated, the pustules of the distinct sort of small-pox made their appearance, and the child, having regularly gone through the several stages of the distemper, was perfectly well in three weeks."

As in all the decisive cases I had collected, except Mr Lynn's, the child was born dead, or died soon after birth, I was desirous to see the subject whose case is just related; but, on inquiry, I found it also died about the fifth day after its birth; an event which it was not thought necessary to notice in the account published.

CASE XVI.

In Dr Haygarth's work on the small-pox, lately published, mention is made of a woman who was seized with the small-pox in the ninth month of pregnancy, and who, "not long after," was delivered of a dead child, that had distinct variolous eruptions over its whole body.

CASE

C A S E XVII.

By permission of Dr Woodville, Mr Wackfel, apothecary to the Small-pox Hospital, was so obliging as to show me a foetus, preserved in spirit, which has apparently variolous eruptions upon it. This child was born dead, by a woman in the eighth month of pregnancy, about a fortnight after she had got well of the inoculated small-pox.

Besides the above cases, which are on record, or which I have seen, I know of several more of the same sort, which have been communicated to me by medical practitioners.

C A S E XVIII.

Dr Ford of Bond-Street informs me, that the case of Mrs Marsh of Bristol fell under his observation. When in the eighth month of her pregnancy, she had the natural small-pox very severely; and soon after she had gone through the disease, she was delivered of a dead foetus, with such appearances, as no one among the number of practitioners who saw the child could doubt to be the

small-pox. The eruptions, in this instance, appear to have been dried.

CASE XIX.

Mr Jones of Mount Street, on whose accuracy and fidelity I can safely depend, saw the case of a woman who was inoculated when seven months gone with child. Soon after the eruptions, which were few in number, had dried up, she was brought to bed of a dead child, that had a numerous eruption of pustules, which were quite flat, but which, he thinks, no one could doubt being those of the small-pox.

CASE XX.

The same practitioner had a woman in the natural small-pox, with very numerous eruptions, under his care, who was in the eighth or ninth month of pregnancy. While the disease was going off, or in the stage of desiccation, she was delivered of a dead child, with a number of quite flat eruptions, which he judged to be most certainly variolous,

C A S E S XXI. and XXII.

Dr Heffack, an ingenious young physician from Philadelphia, who was recommended to me by Dr Duncan, and is now attending lectures in London with great assiduity, has favoured me with the two following cases, in a letter, dated London, March 22d 1794.

“ In the Summer of 1791, the small-pox was, by accident, introduced into the town of Alexandria, State of Virginia. As soon as observed, most of those who had not had the disease, were inoculated; about 900 in all.

“ Notwithstanding the great heat of the weather, in the month of July (the thermometer, upon an average, at 12 o'clock in the day, about 90°), the disease in general proved so mild, that it became a prevalent opinion with several physicians, that Summer, although it had been hitherto so much dreaded, was the most proper season for inoculation.

“ Among other facts of importance upon this subject which presented, (and which will, no doubt, shortly be published by Dr Dick,

Dick,

Dick, a present eminent physician at Alexandria), two cases occurred of the small-pox affecting the foetus in utero, producing miscarriages.

“ The first was a lady, in about the fifth month of her pregnancy. As she was exposed to the infection, she submitted to inoculation. The disease, as usual, was so mild, that she scarcely experienced any inconvenience from it, having but a slight fever, and very few pustules. Notwithstanding the apparently favourable termination of her disease, about a week after her recovery, as it was thought, that is, about four weeks from her inoculation, she felt a weight and uneasiness at the lower part of her abdomen; and the motion of her child ceased. In this state she continued about three or four days, when she was taken in labour, and delivered. The child was dead, but had no appearance of putrefaction. The skin was thickly covered, but with distinct spots, which every person who saw the child, (among others, were two medical gentlemen), pronounced to be the small-pox. The mother experienced no

bad

bad effects from it, but in a very short time recovered.

“ The second case was a lady, who, from an apprehension of danger, both to herself and child, declined inoculation, expecting to escape the disease altogether. But she, unfortunately, received the infection in the natural way. She was in about her seventh month of pregnancy, of a good habit of body, and had enjoyed good health. The disease, however, proved of the confluent species, and very violent. In the last stage of it, when the pustules were drying away, she observed the motion of her child ceased, and felt it as a heavy weight, occasioning some uneasiness, and a bearing down. Notwithstanding this unfavourable circumstance, the mother continued to get better; was free from fever, and the pustules dried away quickly. In short, so favourable was her situation, that I still could not give up all expectation of her child's safety. In this anxious state she continued, (in the meantime, even attending, in some measure, to the offices of her family), until about three weeks from the time she first perceived the
motion

motion of her child to cease. She was then taken in labour, and delivered of a dead child. It smelled extremely fetid; and appeared to have been dead a considerable time. Its whole skin was thickly covered with small dirty-coloured spots, which could not, under the above circumstances, have been any thing but the small-pox; and which would have been pronounced such, by every person who had ever seen small-pox in any of its forms."

OBSERVATIONS.

From the very small number of instances in which the foetus in the womb appears to have been infected, amongst the great number of pregnant women affected with the small-pox, we may safely conclude, that this disease, in such cases, very rarely extends to the foetus. The proofs of the fact, upon which this conclusion is founded, are from the children of such women having the small-pox after birth; and from the absence of eruptions in abortions constantly before the seventh month of pregnancy; and generally, in premature births, at a later period.

From

From the very small proportion of persons who are supposed to be not susceptible of the action of the variolous matter, although their mothers, while pregnant, who had already passed through the small-pox, were exposed to the influence of this poison, and from there not being a single satisfactory proof of this disease in the womb of such women, it may reasonably be doubted, whether the small-pox ever takes place in the uterus, except from infection generated by the mother.

In all the above cases of the supposed small-pox in the womb, in which the disease appears to have been communicated by the mother's infectious matter, the time of the action of the infection in the fœtus may have been the same as in the natural small-pox in the air; which may reasonably be supposed to be the case: because, under both circumstances, the variolous poison is probably conveyed into the constitution along with the aliment; whether that be *oxygen*, which enters by the way of the lungs, or *animal and vegetable matter*, which enters by the way of the alimentary canal.

It

It appears from the above cases, and others on record, that the natural small-pox in pregnant women, is fatal in at least nineteen out of twenty cases to the foetus in the womb, and to three-fourths, or four-fifths of the women. Nor is there, perhaps, a single decisive instance, of a patient going through the disease in the womb, and being afterwards born alive. It is not even clearly proved, that a child, born with the small-pox, has survived this disease.

On what circumstances this fatality to the foetus depends, we know not; but it is obvious to suspect three: viz.

1st, The foetus being immersed in a liquid.

2^{dly}, The small quantity of oxygen taken into its constitution, and that only through the intervention of the mother.

3^{dly}, The temperature of the surrounding medium of fluids and solids, being 97° or 98° .

It is particularly worthy of notice, that the foetus, in the womb, dies with a smaller number of eruptions upon it, than scarcely ever happens from this disease after birth.

There

There are some facts to show, that it is probable, a very small proportion of pregnant women die by inoculation, although the foetus generally is destroyed. All calculation is liable to much inaccuracy in the present state of facts; but in about forty cases of pregnant women inoculated in almost every stage of pregnancy, which I could state on the authority of Sir George Baker, Baron Dimisdale, Dr Ingenhoufz, Dr Woodville, Mr Wackfel, and from the above cases, one died, as stated by Sir George Baker to have happened in the sixth month of pregnancy: but, I am sure, not one in a hundred dies at earlier periods of pregnancy than seven months.

There is no reason to suppose, that the mother's constitution is at all disordered by the small-pox of her foetus, although premature labour and parturition are very liable to come on during the disease of the mother.

It appears from the above cases, that the disease in the mother and foetus are not always in the same degree: for that, in some cases, the mother has the disease severely, and very numerous eruptions; but the foetus

tus has a small number of eruptions. And, on the contrary, at other times, the mother has the disease slightly, and few eruptions; but the foetus a great number of pustules.

If it be allowed, that the above statement of instances of small-pox in the womb, establish the fact, that the foetus is not infected by the variolous matter that infects the mother, and that the foetus is never infected but by variolous matter generated by the mother, it seems highly probable, that this fact will be frequently referred to in physiological and pathological reasoning.

LEICESTER-SQUARE,

May 1794.