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ORIGINAL COMMUNICATIONS.

ON SUPERFŒTATION.

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CASES have, from time to time, occurred, which have induced many physiologists to assert the possibility of a woman again conceiving after she has become pregnant. The phenomenon thus produced has received the name of SUPERFŒTATION; and, although rare, it is worthy of consideration, both from the interest which is attached to it as a physiological occurrence, and from the possibility of its giving rise to medico-legal questions, affecting the reputation or welfare of the individuals concerned. It is not my intention, however, to enter into any discussion on the latter subject; and I will therefore merely quote the words of Capuron in illustration of its possible importance. “*Quoique cette question ne se présente pas fréquemment, elle peut être d’un grand intérêt sous le rapport de la médecine légale. Une veuve, après être accouchée d’un premier enfant, peut accoucher quelque temps après d’un second, dont les collatéraux contestent la légitimité, parce qu’ils n’ont aucune idée de la superfœtation. Il peut arriver encore que cette veuve se remarie bientôt après ses relevailles, et qu’elle accouche, peu de temps après ce second mariage, d’un second enfant à terme et très-viable. Il s’agit alors de décider auquel des deux maris appartient le second enfant.*”<sup>1</sup> I purpose then to confine my observations to the consideration of Superfœtation as a physiological phenomenon. It will be impossible to entirely determine whether it actually took place in all the cases alleged to have occurred; but we may, from a careful examination of these cases, and an impartial consideration of the opinions of the various authors who have written on the subject, be able to draw some probable inferences, while we are at the same time enabled to see more clearly what additional data are required for the perfect comprehension of a subject so difficult of investigation.

The occurrence of cases which gave rise to the theory of Superfœtation was not unnoticed by the ancients. A work *περὶ ἐπικνήσιος* has

been ascribed to Hippocrates; Aristotle also, and Pliny, refer to the subject; and Zacchias, in his "*Quæstiones Medico-legales*", says that the occurrence of Superfœtation has been alluded to by the classic writers. In confirmation of this he quotes, among other instances, the narrative of the births of Hercules and Iphiclus from Hesiod; also the passage of Plautus—

"Nunc, de Alcumenâ ut rem teneatis rectiùs,  
Utrique est gravida—et ex viro, et ex summo Jove."

It attracted a considerable degree of attention among the physicians who lived two or three centuries ago. One of these old writers, Brasavolus, mentions that he had seen Superfœtation *epidemic*! Haller, in his "*Elementa Physiologiæ Corporis Humani*", enters at some length into the consideration of the question of Superfœtation, and gives an epitome of the cases he had been able to collect. A very interesting and instructive treatise on the subject was published in 1738 by Gravel, in the form of an inaugural dissertation, entitled "*De Superfœtatione Conjectura*."<sup>1</sup> Since that period, Superfœtation has been referred to by most of the writers on obstetric and forensic medicine.

The most usual definition of Superfœtation, is *the occurrence of a new conception, when the cavity of the uterus is already occupied by an embryo*. If, however, we admit with Velpeau the possibility of such an event taking place in an extra-uterine pregnancy, it then becomes necessary to extend the definition, and to consider Superfœtation as *the fertilization of an ovum previously to the expulsion of the embryo which already exists within the body of the mother*.

The cases which I have been able to collect as a foundation for the remarks I purpose making, may be arranged under several heads. A division of the cases of Superfœtation into classes is found in Gravel's thesis. He specifies four kinds of Superfœtation: "1. *Ficta*; quæ aut secundùm leges naturæ videtur impossibilis, aut certas ob rationes, cùm facta non sit, facta esse contenditur. 2. *Spuria*; quando uno tempore concepti gemelli simul lucem adspiciunt, aut ambobus, aut uno saltem perfectis existentibus, si nimirùm placentæ adhæserint, vel utrasque in eodem utero senserit cauta et experta obstetricantis manus. 3. *Dubiam* ostendit hypothesis sequens: Excludit puerpera infantem omni numero perfectum, quem sponte secundinæ sequuntur; hunc statim, vel etiam modico quarundam horarum intervallo, alius fœtus, immaturus, paucarum ut videtur mensium, excipit. 4. *Veræ* denique superfœtationis idea erit, si mulier post legitimum partum et consuetum lochiorum fluxum, intercedente aliquot dierum, septimanarum, aut etiam mensium spatio, alio fœtu itidem maturo enititur." The third and fourth of these kinds are those most generally recognized. The first seems to be so rare as not to have been made the subject of special notice, while the second is nothing more than twin conception; for the fact of there commonly being a *distinct* placenta for each twin, generally united in one mass, sometimes separated by an interval, is recognized by most obstetric practitioners. May not all twin pregnan-

<sup>1</sup> This thesis is to be found in Halleri Disput. Anatom. Select., tom. v, p. 337. Gottingæ: 1750; also in Schlegel. Sylloge operum minorum præstantiorum ad artem Obstetricam spectantium, vol. i, p. 325. Lipsiæ: 1795.

cies be, in fact, cases of Superfoetation? This is an interesting subject for discussion; but I can merely allude to it here,

Velpeau says<sup>1</sup> that all the cases of Superfoetation can be referred to four divisions:—1. Twin pregnancies, in which one of the foetuses has died at an early period, and has been retained in the uterus until the expulsion of the other at the full term of gestation. 2. Twins unequally developed, or born at different times. 3. Extra-uterine pregnancies, which have not prevented a natural gestation. 4. Cases occurring in double uteri. 5. He admits also a class of cases which he terms "*Superfoetation proprement dite*", comprising those in which children of different colours have been born.

Velpeau's classification appears very convenient for the consideration of the cases; I propose, then, to adopt it, with some modification, and to arrange the cases in the following order:—

1. Cases in which a dead twin has been retained in the uterus.

2. Cases in which children have been born either

(a) both at the same time, but of different degrees of development; the smaller foetus being either alive, or very recently dead; or,

(b) where the less perfect foetus has been retained till it became mature.

3. Cases in which children of different colours have been born.

4. Cases in which a double uterus has been discovered to exist.

5. Cases occurring during extra-uterine gestation.

I. The first class of cases, those in which a dead twin has been retained in the uterus, cannot, I think, be regarded otherwise than as very equivocal examples of Superfoetation. The following are some of the instances.

Baudelocque<sup>2</sup> relates the case of a woman, who, in the year 1772, had a severe fall when advanced four months and a half in pregnancy. This occasioned symptoms of threatening abortion, which were relieved by bleeding and rest. At the full term, she was delivered of two children, one of which was mature, while the other was dead, apparently about five months old; it had undergone scarcely any decomposition. The placenta is described as having been single. Baudelocque attributed the death to the fall.

Dr. Denman<sup>3</sup> gives the case of a female, who went to the ninth month of pregnancy; but, between the fifth and sixth, she met with a great fright, which affected her greatly, and diminished her size. On the 11th of February, she was delivered of a healthy child, but continued in pain; and it was not till the morning of the 25th that she was relieved. On that day, there was born the head and parts of a child that had just the appearance of a miscarriage of four months.

Not to multiply cases of this kind in detail, I will refer the reader to Beck's *Medical Jurisprudence*, seventh edition, p. 159, where a number of references are given. That both the above-mentioned cases were not instances of Superfoetation, is evident from their history; for, in both, a distinct date is assigned to the occurrence of

<sup>1</sup> VELPEAU. *Traité complet de l'Art des Accouchemens*, tom. i, livre 4, chap. 3.

<sup>2</sup> BAUDELLOCQUE. *L'Art des Accouchemens*, tom. ii, p. 361. Paris: 1781.

<sup>3</sup> DENMAN (Thomas, M.D.). *An Introduction to the Practice of Midwifery*.

symptoms denoting the death of one child, corresponding with its apparent age when born. A dead fœtus may be retained for several months without undergoing decomposition, or but very little; and Baudelocque's case is a good example of this. It may be urged, that this was an example of an arrested twin, and that death took place only a short period before its expulsion; but the coincident circumstances of the case scarcely warrant such a supposition. From the following case, it would even appear that the presence of a dead fœtus in the uterus may not be an obstacle to the conception of another, which may then be considered as a Superfœtation.

Baron Percy<sup>1</sup> relates the instance of a woman, residing in the vicinity of Lagny, who became pregnant in July 1820, for the first time. She felt distinctly the movements of the child about the fourth month, which gradually became more feeble, and at last entirely ceased. In the course of seven weeks from this period, she experienced all the symptoms of a fresh pregnancy; and the nine months of this gestation passed on without any remarkable occurrence. She was attended by Dr. Cochard, of Lagny, and Dame Robert. She had an easy and rapid labour, and was delivered of a small, but lively male child. Soon afterwards, fresh pains came on, during which a number of black unorganized coagula escaped from the uterus, in the midst of which was a female fœtus, seemingly of the fourth month, and well preserved. The translator expresses it as his opinion, that the second conception took place after the death of the first child.

Haller refers to partial abortion. He states it to be certain that one twin may die, while the other remains in the uterus; and the possibility of such an occurrence is now generally allowed. We are, therefore, justified in rejecting from the catalogue of cases of Superfœtation, nearly all those in which one of twins has died, and has been retained in the womb.

II. The second class of cases is more worthy of consideration, as they have mainly served as the foundation of the difference of opinion, which has prevailed regarding the possibility of Superfœtation. It includes—(a) Cases in which two children, of different degrees of development, were born alive at the same time; and (b), Cases in which one was retained for some days, weeks, or even months after the other, until it had arrived at maturity. The following are examples.

(a) *Simultaneous birth of children of different degrees of development.*

Ventura<sup>2</sup> relates the case of a lady, who considered herself as being arrived at the ninth month of pregnancy. During the first four months, she had periodically a moderate sanguineous discharge from the uterus, without pain or indisposition; hence she doubted of being pregnant, until satisfied by the presence of abdominal enlargement and by the movements of the fœtus. As soon as this periodical evacuation ceased, she began to be troubled with nausea, vomiting, inappetency, lassitude, and other symptoms which had not previously affected

<sup>1</sup> Journal Universel, Mars 1823. Translated in *London Medical Repository*, vol. xx, p. 110. 1823.

<sup>2</sup> VENTURA, Don Joseph (Cirujano del Hospital General de la Pasion), *Preceptos Generales sobre las Operaciones de los Partos. Parte primera. Madrid: 1787.*

her. At the period of parturition, vigorous expulsive pains set in; and the feet of a child presented, apparently of about five or six months. It was baptized, and born alive. While employing friction over the abdomen, Ventura perceived still great size and hardness, and also the movements of a child. This was soon born, and was of the full size. There were two placentæ, corresponding in size with the respective fœtuses.

The next case has some resemblance to that just related. Catherine Fournier Lafond,<sup>1</sup> aged 32 years, tall, thin, and well-formed; the catamenia have always been irregular. In June 1845, they ceased to appear, and certain symptoms induced her to think herself pregnant. At the end of August the menses reappeared on two occasions, at an interval of some days, but their duration was short, and quantity small. She vomited also at this time. The signs became more marked, and the catamenia ceased permanently. On the 28th of February, 1846, pains commenced, which continued all the following day and night. Towards morning, on the 2nd of March, they appeared to diminish. The neck of the uterus was greatly dilated, the waters were slowly discharged, and the uterus became very sluggish. The child presented in a good position. Two grammes of ergot of rye were administered, under the influence of which the pains returned, and a dead child, apparently at the full time, was born. The placenta was soon expelled. Nine hours after the accouchement, she perceived the sensation of a body passing through the vagina, without any pain or great effort. This was found to be a second fœtus, having all the characters of one from four and a half to five months old; with a chord, a placenta still bloody, and membranous envelopes, all perfectly intact and well preserved.

M. Roch-Farbès,<sup>2</sup> of Toulouse, relates the following case. Madame Noël was delivered of a child at full term. Another fœtus, apparently of about six months, was also expelled. It could not suck, but was kept alive a week by means of cow's milk.

Dr. Fahrenhorst<sup>3</sup> gives the case of a woman, who became pregnant in September 1825. Her health was perfectly good during the period of pregnancy, and there was no appearance of menstrual discharge. On the 28th of April, 1826, she was delivered, in the middle of the day, of a fœtus, enclosed in its membranes. After its expulsion, another bag of membranes was perceived; and, during the night, this was expelled. It contained a fœtus, supposed to be of the fourth month. The first fœtus appeared to have been born at the full term.

Pertus<sup>4</sup> saw a woman delivered of a three months' fœtus, soon after which a five weeks' embryo was expelled.

Cases of this kind might be multiplied; but in many, the difference in the age of the twins has not been so great as to lead to any other supposition, than that they were conceived at the same time, or within a few days of each other.

(b) *Retention of the second fœtus.*

Zacchias<sup>5</sup> gives the case of a woman, whose husband lost his life in

<sup>1</sup> Gazette Medico-Chirurgicale, Avril 1846, quoted in *Monthly Journal of Medical Science*, vol. vi, p. 144. 1846.

<sup>2</sup> Recueil Periodique de la Société de Médecine de Paris, tom. v. p. 191.

<sup>3</sup> Rust's Magazine, 1827: quoted in *Medical Gazette*, vol. i, p. 806. 1826.

<sup>4</sup> Revue Médicale, Mars 1838.

<sup>5</sup> ZACCHIAS. Consilia. No. 66.

a quarrel. Eight months after, she was delivered of a deformed child, which died in the birth. Her abdomen remained large, and it was suspected that another infant was contained in the uterus, but all efforts to remove it proved unavailing. A month and a day after, she was again taken in labour, and brought forth a perfect living child. The relations of the husband contested its legitimacy, on the ground that it was a Superfœtation.

Professor Eisenmann<sup>1</sup> relates the following case. Marie-Anne Bigaud, aged 37, was delivered of a living male child, on the 30th of April, 1748. Her delivery was so rapid and favourable, that she was able to return in an hour from the house of the midwife who had attended her, to the military hospital at Strasburg, where she resided. In her two former confinements, the lochia had been abundant; but in this one there was no loss of blood or of fluid, except at the moment of delivery. Her breasts, though naturally large, gave her no trouble, and did not become filled with milk, so that she was obliged, at the end of a fortnight, to provide a nurse for the child. These circumstances, together with her having distinctly felt the movements of another fœtus, and the appearance of symptoms similar to those she had before felt during pregnancy, led her to consult M. Leriche, chief surgeon of the hospital, who ascertained, by manual examination, that she was some months pregnant. On the 16th of September, she was delivered of a living female child, evidently at the full period; after this, she had considerable hæmorrhage, and milk appeared in abundance. The first child lived only two months and a half; the second, a year and two days. After having borne several other children, Marie Bigaud died, in 1755, of an acute disease. Professor Eisenmann made a *post mortem* examination of her body; and, having twice met with double uteri, thought that a similar conformation might exist in this case. The uterus was, however, found to be simple.

Foderé<sup>2</sup> gives an account of a similar case:—Benoîte Franquet,<sup>3</sup> of Lyons, was delivered of a female child on the 20th of January, 1780, and experienced, after her accouchement, a similar absence of milk and lochia to M. Bigaud. In three weeks, she felt the movements of a fœtus; and her view was confirmed by M. Desgranges, whom she consulted. On the 6th of July, five months and sixteen days after the first, she was delivered of a second full-sized and healthy child. This accouchement was followed by the usual flow of milk and lochia. The children both lived; and, two years after, she made an affidavit of the fact before MM. Caillat and Dusurgey, notaries at Lyons, “not only to testify her gratitude to M. Desgranges, but also to furnish those women who might happen to be in a similar condition, and whose husbands died before the birth of the two infants, with a title in favour of their virtue and of the legitimacy of the second child.”

Dr. Maton<sup>4</sup> published the following case:—Mrs. T., an Italian lady,

<sup>1</sup> De Utero Duplici, etc., auctore G. H. EISENMANN, Anatomiz et Chirurgiz Professore. Argentorati: 1752. This case is quoted in most of the works which treat on Superfœtation.

<sup>2</sup> FODERÉ. Traité de Médecine Légale et d'Hygiène Publique. 2nd Edition. Paris: 1813. Vol. i, pp. 484-86.

<sup>3</sup> This is evidently the same woman who is described in some accounts as “the wife of Raymond Villars.”

<sup>4</sup> Transactions of the Royal College of Physicians, vol. iv, p. 161.

but married to an Englishman who was attached to the Commissariat of the British army in Sicily, was delivered, on the 12th of November, 1807, of a male child, which had every appearance of health. It was brought forth under circumstances very distressing to the parents, being dropped in a bundle of straw, at midnight, in an uninhabited room; and it survived nine days only. On the 2nd of February, 1808 (not quite three calendar months from the preceding accouchement), Mrs. T. was delivered of another male infant, completely formed, and apparently in good health. When about three months old, he died from measles. From November 1807, to February 1808, Mrs. T. had not left Palermo, except on short excursions in her own carriage; and her husband had been constantly with her since the year 1805. He communicated this narrative to Dr. Maton, with a certificate pledging himself to its truth. It was ascertained, from careful inquiries made by Dr. Paris, of Dr. Maton, that both children were *perfect*.

Ventura,<sup>1</sup> in the early period of his practice, attended the wife of a man named Simon Cabezas. She was delivered by a midwife of a child of fair size, which lived seven and a half months; and before the end of five months, he attended her in her confinement with another, which was larger than the first, and lived four years.

MM. Laudun and Bret<sup>2</sup> relate the case of a woman, who, on the 23rd brumaire, an. vi (13th November, 1796), was delivered of a full-grown child. The lochia were suppressed on the fourth day, and there was no secretion of milk. In six weeks, she perceived the movements of an infant: and on the 28th germinal (11th April, 1797), she was delivered of a child at full term. This time the lochia and milk were abundant.

Dr. Mæbus,<sup>3</sup> of Dieburg, relates the following case. A woman, on the 16th October, 1833, was delivered of a living female child of full size; and on the 18th November, of another, also at full term.

Haller<sup>4</sup> refers to the following cases, as examples of Superfœtation.

Birth of a living and healthy foetus twenty days after another.

Children born successively on 13th June, 24th June, and 10th July.

Interval of forty days between the births.

A smaller child born fifty days after the former one.

Births at the seventh and ninth months (Aristotle).

Births of two children at full term, with an interval of two months.

The movements of one foetus were perceived two months after those of the other.

Child born three months after the former one.

Children born on the 7th April and 27th July (Fischer); also in September and December; also in April and August; and in April and September.

Birth of a male child, followed on the thirty-fifth day by that of a girl; and this, after a hundred and forty days, by another boy.

A weak foetus, born six months after the first.

Mature and healthy children, born on the 31st July and 9th February (Bartholin).

<sup>1</sup> VENTURA. *Op. cit.* p. 92.

<sup>2</sup> Recueil Periodique de la Soc. de Médecine, tom. ii, 1797, p. 384.

<sup>3</sup> HENKE'S Zeitschrift, Bd. 31, Heft 2.

<sup>4</sup> HALLER. *Op. cit.*

The *Gentleman's Magazine* for March, 1814, relates a case in which a woman was delivered of two boys, and in six weeks of two others.

The cases which I have just enumerated are those which have given rise to the greatest difference of opinion, among those who have treated of the subject of Superfœtation. Some, among whom is Haller, are disposed to consider them as instances, in which a second (or even a third) conception took place during the presence of an embryo in the process of development in the uterus; while others, rejecting this idea, have expressed their opinion that they are merely twins, of which one has been retarded in its growth, and has remained in the uterus until fully developed. And, when we attempt to settle the question by analyzing those cases which have been most fully reported, and which consequently seem to afford us some data for conclusions, we find it impossible to determine which of these opinions is right; for, while some cases may be considered as affording proof of the occurrence of Superfœtation, others can with equal, or perhaps greater propriety, be classed among twin pregnancies. The imperfect manner in which many of the cases are recorded do not enable us to state, with any degree of certainty, under which of these heads they may be placed; but there are, I think, sufficient data in some of them to warrant the conclusion that Superfœtation is possible in certain instances.

The opponents of the doctrine of Superfœtation assert that it is impossible, because the uterine orifices are closed soon after conception, and because menstruation is suspended during pregnancy; and that, therefore, a second impregnation cannot take place. Dr. Allen Thomson, after admitting that sexual intercourse for a few days after conception (most probably previous to the closure of the uterus,) may produce a Superfœtation, makes the following remarks. "Although it may be, that the mechanical obstruction of the decidua opposes an obstacle to the passage of semen upwards, or to the descent of a new ovum into the uterus, there is obviously another cause why Superfœtation should not occur; we mean that fundamental change in the constitution which is induced by pregnancy, similar to that which continues in the majority of women during lactation. But for such a constitutional change, we conceive continual derangement of the function of utero-gestation would attend that process, in consequence of the recurrence of some of the more general symptoms of conception, even though the lodgment of a new ovum in the cavity of the uterus were possible."<sup>1</sup> Dr. David D. Davis<sup>2</sup> believes that the influence of gestation in causing a suspension of the catamenial secretion is universal and without exception: and, notwithstanding the statements of menstruation having occurred during pregnancy, he is decidedly of opinion, "*that genuine menstruation has really never existed during gestation.*" He grounds his assertion further on the argument, that the orifice of the womb is hermetically sealed during gestation; in consequence of which, no description of fluid, whether the produce of the menstrual function or any other, can by any possibility escape out of its cavity without the previous disturbance of the strongly adhesive

<sup>1</sup> Cyclopædia of Anatomy and Physiology, vol. ii, art. GENERATION.

<sup>2</sup> Principles and Practice of Obstetric Medicine, vol. i, pp. 252-3. 1836.

plug, by means of which nature has closed up the orifice. He allows that sanguineous discharges sometimes proceed, during pregnancy, from the genital passages; but asserts that, in a great number of cases, they are followed by the expulsion of the ovum. And, as to the few recorded cases of periodical menstruation during gestation, he thinks that they are to be referred to extra-uterine sources, and that periodicity is no proof of their being menstrual.

The occasional occurrence of menstruation during at least the early months of pregnancy, has long been admitted; and there are a sufficient number of cases recorded by competent observers to place the matter beyond a doubt. Mauriceau mentions a case, in which a woman menstruated periodically with each child, up to the sixth month. Brierre de Boismont<sup>1</sup> states, that he has seen five cases, in which the menses continued to flow for two, three, and four months; and three, in which they continued during the whole period of utero-gestation. Dr. Rigby<sup>2</sup> considers that "the regular appearance of the menses for the first few months of pregnancy is of such frequent occurrence, as to place the matter beyond all doubt"; and Dr. Montgomery<sup>3</sup> is perfectly convinced that it sometimes occurs.

Admitting then, as I think we must do, the possibility of menstruation taking place during pregnancy, we may inquire under what circumstances it occurs? Many of those who admit its possibility say, with Dr. Davis, (who denies that the fluid is menstrual,) that the discharge may be furnished by the vessels of the exterior of the cervix and vagina, which assume a periodical catamenial function. It is highly probable that many cases are of this kind; and that if the menses flow during the later months of pregnancy they may arise from the vaginal portion of the uterus; but I think it scarcely necessary to ascribe the flow to an extra-uterine source in all cases. The uterus may furnish it from its inner surface. In cases of double uterus, to which I shall presently refer, the unoccupied cornu may furnish the secretion. As for the plug at the os uteri opposing its exit, I do not think this is at all a difficulty; for the secretion may remove an imperfectly formed plug. Ventura<sup>4</sup> makes some remarks, which, no doubt, contain a deal of truth. "Superfecundation can occur in women of very sanguineous temperament, whose menses are very abundant before conception. In these, the fœtus, in the first months of pregnancy, cannot consume for its nutrition all the blood contained in the uterine vessels . . . . Under some circumstances, this viscus is compelled to unload itself of the superfluous blood, which it excretes through the vessels of the neck, and through many of those of the surface, where the placenta is not adherent. Hence the periodical continuance of the menses for three, four, or five months: and, as this cannot take place without a manifest dilatation and relaxation of the os uteri, if at that time cohabitation take place,

<sup>1</sup> BOISMONT (A. Brierre de). *De la Menstruation considérée dans ses Rapports Physiologiques et Pathologiques*, p. 157. Paris: 1842.

<sup>2</sup> RIGBY (Edward, M.D.). *A System of Midwifery*. 1841.

<sup>3</sup> MONTGOMERY (W. F., M.D.). *An Exposition of the Signs and Symptoms of Pregnancy, the Period of Human Gestation, and the Signs of Delivery*. 1837.

<sup>4</sup> Op. cit.

there is no doubt that the semen may reach one of the Fallopian tubes, and produce a new conception, which is termed Superfœtation."

The periodical occurrence of the catamenial flow during pregnancy, must be considered as a proof of its being connected with ovarian excitement, and consequently with an aptitude for conception. It evidently obeys the same laws as those which usually regulate the appearance of the menstrual secretion. Dr. Meigs,<sup>1</sup> of Philadelphia, in his valuable work on Obstetrics, published during the present year, thinks that periodical ovarian excitement may go on throughout pregnancy. He says: "The conception does not necessarily put a stop to the periodical development of ovarian ova, nor to their maturation and fall. But a woman who menstruates because of her oviposit, will tend to menstruate at regular periods, though she have conceived in the womb. Some women have this tendency so strongly, that they do actually menstruate during the earlier months of their gestation. The above may serve as an explanation of the very common opinion, that a woman is liable to abortion at periods coinciding with the menstrual effort." (p. 213.) Dr Tyler Smith<sup>2</sup> recognizes menstruation as occurring during pregnancy, especially in the early months. He observes, that "almost all women can perceive the menstrual periods as they pass through utero-gestation, particularly at the first three or four periodic dates. Those who have suffered from menorrhagia or dysmenorrhœa, or in whom organic ovarian disease has existed before conception, recognize the menstrual nismus most clearly; and it is precisely in these subjects" (and at these periods) "that abortion is most likely to occur."

It seems evident to me, then, that the alleged absence of the catamenial secretion (and, by implication, of the ovarian nismus), cannot be adduced as a proof against the possibility of Superfœtation taking place during the earlier period of utero-gestation. The first of these cases related by Ventura (p. 1090), and the one immediately following, tend to support the position I have endeavoured to advance—that Superfœtation is possible, if menstruation occur during the early months of pregnancy. The points most worthy of note are, the occurrence of menstruation subsequently to conception, and the size of the smaller child corresponding, or very nearly so, with the last appearance of the catamenia. It may be objected, that these were cases of unequally developed twins; if so, the coincidences were very extraordinary.

It may not even be necessary that obvious menstruation should take place. Some women have become pregnant, though they have never apparently menstruated: and it is very possible, that the *essential* phenomenon of menstruation—ovarian excitement—may be present to such a degree, as to allow the possibility of Superfœtation, provided that no other impediment exist. The following case, related by Dr. Thomas B. Taylor, of Princetown, Mississipi, U.S., is an apt illustration of my meaning. Clarissa, a negress, the property of Mr. A. Knox, aged about 35 years, in May 1848, was delivered of twins; one a mulatto, and the other a negro child. She had been married several years

<sup>1</sup> MEIGS (Charles D., M.D.). *Obstetrics, the Science and the Art.* Philadelphia: 1849.

<sup>2</sup> SMITH (W. Tyler, M.D. Lond.). *Parturition, and the Principles and Practice of Obstetrics.* London: 1849.

to a negro man on the plantation, of delicate constitution, and had had several children by him. Her menstrual discharge had occurred for several months previous to her pregnancy, at the full of the moon. She felt herself pregnant by her customary signs, about the middle of the month; and, to confirm her suspicions, at the next period the menses did not appear. About three weeks from the time she first felt that she had conceived, and one week after her menses had failed to appear at the regular period, she had sexual intercourse *once* with a white man. At birth, the mulatto child bore marks of being at least three weeks younger than the negro; thus sustaining the woman in her supposition, as to the time between the two conceptions.<sup>1</sup>

This case appears to me a most conclusive one: for there can be no doubt that the second child (the mulatto) was the product of a second conception, at the first menstrual period during gestation, when, though there was no apparent flow of the catamenia, the aptitude for conception still remained in force. The different colours of the children, and indeed the whole circumstances of the case, render it highly improbable that it was a mere case of unequal twins.

A somewhat similar case was mentioned by M. Chevroin,<sup>2</sup> at the meeting of the Academy of Medicine of Paris, September 20, 1842. A negress, at Guadeloupe, was delivered of a black child, and, after an interval of three months, of a mulatto.

Sexual excitement, during pregnancy, is a recognized cause of abortion. It probably operates, in many cases, by means of the increased ovarian excitement which it produces, especially if it take place at the catamenial periods. But it does not follow that, in every case, abortion is the necessary consequence: and I think that, whenever there is a physical or physiological possibility of Superfoetation, several varieties of circumstances may be induced.

1. Abortion may occur, either through irritation of the uterine or vaginal nerves, or through increased ovarian excitement. If a second ovum have been impregnated, and have descended into the uterus, it may be also expelled.

2. The abortion may take place before the descent of a second ovum, which thus is removed from danger, and is capable of being developed forthwith in the uterus.

3. The excitement may fail to act on the uterus so as to call its expulsive powers into action, while a second impregnated ovum may descend into the womb, and there be developed. This would form a true case of Superfoetation; and I think that, although of rare occurrence, it is far from being impossible.

These remarks are founded on the supposition, that there may be no mechanical impediment, from closure of the os uteri or of the orifices of the Fallopian tubes, to the fecundation of a second ovule. But probably, in many cases, the mechanical impediments at the uterine orifices render a second conception in the human subject impossible. This is evidently a wise provision of nature against the continued fertilization of ova, and their descent into the uterus, during gestation.

<sup>1</sup> New Orleans Journal, November 1848; and American Journal of the Medical Sciences, April 1849, p. 549.

<sup>2</sup> Gazette Médicale de Paris, 1842, p. 622.

If it were not so, we might expect Superfœtation to occur much more frequently,—provided that abortion of the already existing embryo were not induced.

Another explanation of the cases of alleged Superfœtation, and one which is probably correct in a large number of instances, is that a twin has been arrested in its growth. It may then either be expelled at the same time with the mature fœtus, or it may be retained until it have arrived at its full development. In the latter case, why are not both expelled together? To answer this question, we must be acquainted with the exciting cause of parturition. If this be the return of the ovarian nîsus, at a catamenial period, then why does not the expulsive power of the uterus produce the abortion of the imperfect embryo, as well as the normal delivery of that which has arrived at maturity? If, on the other hand, we recognize the condition of the fœtus and placenta as an accessory circumstance, having an influence on parturition, then there is some reason for supposing that this cause operates in the retention of the smaller child, especially if it have arrived at a period of development in which the danger of abortion is diminished. This reasoning will equally apply to the cases, in which there is every probability that Superfœtation has taken place.<sup>1</sup>

It is difficult to form a diagnosis between cases of retained twin and of true Superfœtation, though several authors have attempted to do so. Gravel states, that they may be distinguished:—1. By twins being of equal size at first, but afterwards becoming unequal, as one grows more than the other. 2. By the movements of the smaller twin being much more obscure than those of the other, while, in Superfœtation, the movements of the second fœtus are strong, and gradually increase. Foderé lays down the following distinctive marks:—1. The second child, in Superfœtations, is usually larger and more healthy than the first. 2. Twins have generally a single placenta, while the product of Superfœtation has its placenta distinct from that of the other child. 3. There is a great interval, in the cases recorded, between the births of the children. He denies that a twin may be retained more than a week or two. I do not think that the data given by Foderé can be depended on as means of diagnosis. It would be very difficult to prove that the second twin may not attain greater size and strength than the first, if it be retained for a sufficient length of time, in its favourable circumstances of increased space, and possibly of increased supply of aliment. Foderé lays great stress on the cases of Bigaud and Franquet, in which the lochia and milk were suppressed until after the birth of the second child, as affording proofs of Superfœtation. But it is not unlikely, that this retention was an expedient of nature, to preserve a sufficient quantity of nutritive matter for the retained fœtus, whether a twin or not: and if the aliment be so carefully retained, we can see why the second twin, as well as the product of Superfœtation, may be larger and stronger than the first. As to the placenta; twins have not always a single placenta, but separate ones, attached to different

<sup>1</sup> Gravel has a very curious idea as to the cause of the retention of the second fœtus. "Cur vis uteri contractilis non ultimam operi manum admovet? Scilicet tum demum infanticidium abhorrens anima, relicto in pineali glandulâ throno, ad uterum descendit, et embryonem prehensâ manu detinet, dum fœtum perfectum calcibus foras extruderit."

portions of the uterus. If there be a single placental attachment, the probability of the two fœtuses being expelled at the same time is increased,—though this is not a necessary consequence.

The cases related by Ventura and by Dr. T. B. Taylor, are instructive in furnishing data for diagnosis. In both of these, the coincidence between the apparent age of the smaller child at birth and the supposed date of its conception, is too striking to be considered as merely accidental. The different colour of the children in the last case is an additional proof. But we have not always the data furnished with such accuracy; and we can only conclude, with Orfila,<sup>1</sup> “that the physician consulted in such cases, should admit the possibility of Superfœtation, but state, at the same time, that it is very difficult to distinguish this from abortion, or from twin pregnancy”.

III. There is another class of cases, which prove the possibility of a second conception taking place at an early period: viz., those in which two children have been born of different colours. One of these I have already related at page 1096, as it had a bearing on the subject there under consideration.

A case is related by Buffon,<sup>2</sup> of a woman at Charlestown, in South Carolina, who was delivered, in 1714, of twins, within a very short time of each other. One was found to be black, and the other white. This variety of colours led to an investigation; and the female confessed, that, on a particular day, immediately after her husband had left her, a negro entered the room, and, by threatening to murder her if she did not consent, had connexion with her.

Dr. Moseley<sup>3</sup> mentions the following as occurring on Shortwood Estate, in the island of Jamaica. A negro woman brought forth two children at a birth, both of a size; one of which was a negro, and the other a mulatto. On being interrogated as to the occasion of their dissimilitude, she said, that a white man belonging to the estate came to her one morning, and she suffered his embraces almost immediately after her black husband had quitted her.

Dr. Turton<sup>4</sup> attended a negress, named Maria Johnson, who was delivered of a black child at the eighth month, which lived two hours. After some hours, a four months' white fœtus was expelled. This, though a possible, is but a doubtful case of Superfœtation; for the smaller fœtus may have been a negro, which had not yet acquired colour.

Mr. Richard Dick<sup>5</sup> related the following case. A negro woman, an apprentice on Orange Park Plantation, in the parish of St. David, Jamaica, was, on the 12th of December 1834, delivered of two male children, one of which was a fair mulatto, the other a negro, both of which lived. The woman denied having had any intimacy with a white man.

<sup>1</sup> ORFILA, *Traité de Médecine Légale*. 4me Edition. Paris: 1848.

<sup>2</sup> Quoted by Foderé, vol. i, p. 482; by Beck, p. 160; etc. This case seems to be inaccurately reported; for one of the children should have been a mulatto.

<sup>3</sup> Moseley on Tropical Diseases, p. 111. Quoted by Beck.

<sup>4</sup> London Review, No. 16, 20th October, 1823.

<sup>5</sup> American Journal of the Medical Sciences, vol. xvii, 1835, p. 188, quoted from *Jamaica Physical Journal*.

Dr. Holecombe,<sup>1</sup> of West Granville, Massachusetts, was acquainted with female twins, eight or ten years' old. One was a well marked negro, the other a mulatto, presenting less than usual of the negro appearance. The mother, a negress, confessed having had intercourse with a white man. The black child had a strong family resemblance to the black father. All the other children of the family were very black.

A married woman, aged 22, was brought to bed of twins in the Lying-in Hospital at Berlin,<sup>2</sup> on the 25th of January, 1832. The children were both girls, and died in two hours after birth, which took place before the end of the seventh month. One child was white, the other evidently a half-caste, as was indicated by the shape of the head, and the leaden tinge of the face, hands, and feet, which in colour resembled those who have been tinged by taking nitrate of silver in large doses. The same difference of colour was strikingly exemplified in the umbilical chords of the infants, but not in the membranes or placenta. On enquiry, it appeared that she was in the habit of intimacy with a negro, shortly after, or at the time, when she had conceived by her husband.

Dr. Dewees<sup>3</sup> has related, that a servant in Montgomery county was delivered of a black and a white child at one birth. He states also, that on the report of the pregnancy, both a black and a white man disappeared from the neighbourhood.

Dr. Elliotson<sup>4</sup> relates, on the authority of Mr. Blackaller, of Weybridge, the following case. A white woman, of very loose character, left her husband, and some time after, returned pregnant to the parish, and was delivered in the workhouse of twins, one of which was of a very dark colour; the hair quite black, with the woolly appearance usual to negroes, with flat nose and thick lips. The other had all the appearances common to white children.

Dr. Dunglison relates,<sup>5</sup> that one of his pupils, Mr. N. J. Huston, of Virginia, communicated to him the particulars of the case of a female, who was delivered, in March 1827, of a negro child and a mulatto on the same night.

Several similar cases are referred to in the foot-note at page 160 of Beck's *Medical Jurisprudence*; and Dr. Dunglison has observed, that, "where negro slavery exists, such cases are sufficiently numerous".

A very remarkable case is related by the Rev. Dr. Walsh,<sup>6</sup> which was communicated to him by the Sargenté of San Jose gold district (Brazil). A Creole woman had three children at a birth, of three different colours, white, brown, and black, with all the features of the respective classes.

These cases prove the possibility of a second conception taking place soon after the first. In several of them, the confessions of the women serve to remove all doubt. The ovum first impregnated had probably not descended, nor had the uterus been placed in a condition to oppose

<sup>1</sup> Boston Medical and Surgical Journal, vol. xiii, p. 64.

<sup>2</sup> Dublin Journal of Medical and Chemical Science, quoted in *London Medical and Surgical Journal* for 1834.

<sup>3</sup> Philadelphia Medical Museum, vol. i.

<sup>4</sup> Notes to Blumenbach's Physiology, p. 485.

<sup>5</sup> Dunglison's Physiology, vol. ii, p. 324.

<sup>6</sup> Walsh (Rev. Dr.). Notices of Brazil, vol. ii, p. 90.

an obstacle to further fertilization. There may be something, too, in the difference of races. In some animals, the impregnation of the female, near the same time, by males of different breeds, has produced offspring resembling each of the male parents. It is very difficult to distinguish such cases of consecutive conception from twins. If a woman conceived of children, after cohabiting successively with two men of her own colour, the offspring would doubtless be considered twins, in the strictest sense of the term, unless a strongly-marked paternal resemblance gave room for a different opinion.

IV. In the foregoing cases, I have reasoned as if the uterus were single. But the presence of a Double Uterus has been much insisted on as explanatory of the doctrine of Superfœtation; and, it is not improbable, that in several of the cases to which I have referred, this peculiarity of structure existed; though, in some, as in that mentioned by Professor Eisenmann, the cavity of the organ was single. This malformation seems to be of not unfrequent occurrence; and several writers have recorded a large number of cases in which it existed. Dr. Cassan, of Paris, in the year 1826, published a thesis entitled *Recherches sur les Cas d'Uterus Double et de Superfœtation*. Voigtel, in his *Handbuch der Pathologischen Anatomie*, gives a copious list of cases; and Madame Boivin, and Professor Rokitansky, have observed this structure in a pretty large number of subjects. It has, like most other malformations of organs, its analogue in the lower classes of mammalia. Dr. Rigby<sup>1</sup> gives a good summary of the different forms of the uterus in animals. "The nearest to the tubular uterus, and where the transition from the oviduct in birds, etc., to the uterus in mammalia, is least distinctly marked, is the *uterus duplex*. Although the uterus is double, there is but one vagina into which the two ora uteri open; there are as yet no traces of a cervix, each os uteri merely forming a simple opening, at the lower end of what is little more than a cylindrical canal. We do not find that thickening at the lower extremity of the uterus which distinguishes the cervix in the higher mammalia. This species of uterus is found among a large portion of the rodentia, and is also occasionally met with as an abnormal formation in the human subject. The next grade of uterine development appears under the form of the *uterus bicollis*. The double os uteri here ceases to exist, and the division begins a little higher up, so that the two cavities of the uterus communicate for a short space; the ova, however, do not reach the common cavity, but remain each in its separate cornu. In this form of uterus, the os uteri is not only single, but the lower portion is thickened, although it has not yet formed a distinct neck or cervix; it is met with among some of the rodentia, and also certain carnivora.

"In the *uterus bicorporeus*, the union of the cornua is higher up, so that the lower portion is single, while the upper part alone is double, consisting of two strongly curved cornua. This formation is peculiar to ruminating animals. If two ova be present they are separate from each other, each being contained in its own distinct body or cornu, but a portion of the membranes extends along the common cervix, from one body to the other.

<sup>1</sup> Op. cit. p. 15, 16.

"A still higher grade is the *uterus bifundalis*, where the fundus alone is double, the cornu being formed only by this portion. This formation is observed in the horse, ass, etc.: the common cavity is here the receptacle of the ovum, so that in the impregnated state, the cornua appear only as appendices, into which a portion of the membranes extend.

"In the *uterus biangularis*, the double formation has nearly disappeared, except at the fundus, where the uterus imperceptibly passes into the tubes: this is the case among the edentata, and some of the monkey tribes.

"The highest grade is the *uterus simplex*: every trace here of the double form is lost; the fundus no longer forms an acute angle, where it bifurcates into two cornua; but is convex. We now for the first time see the divisions of the uterus into body and cervix distinctly marked.

"The human uterus presents a similar variety of forms, as it gradually rises in the scale of development during the different periods of uterogestation. It is at first divided into two cornua, and usually continues so to the end of the third month, or even later; the younger the embryo the longer are the cornua, and the more acute the angle which they form; but even after this angle has disappeared, the cornua continue for some time longer."

The term *double uterus* has been objected to by Drs. Robert Lee and D. D. Davis, on account of there being but one ovary and one Fallopian tube to each division. It seems, however, convenient to retain the term, as comprehending all the cases in which the uterus consists of two distinct cavities. Dr. Davis thus classifies them after Voigtel:<sup>1</sup>—"Either there is one uterus, with a single uterine aperture and one vagina, the space allotted to the uterine cavity being divided into two parts by a distinct membranous septum; or the body of the womb is found to consist of two parts perfectly distinct and separate from each other, but uniting in a common aperture into a single vagina; or there are two uteri distinct and separate throughout, each having its distinct opening, and each communicating with its appropriate vagina".

In those animals in which a double uterus exists, Superfœtation is stated to be of common occurrence, *e. g.* in the hare and other rodentia. It is somewhat remarkable, that although Superfœtation in the human female has long been supposed to be closely connected with this peculiarity of structure, but few cases have been recorded in which these were actually discovered to co-exist. We may then inquire, whether there are any inherent circumstances in the existence of a double uterus, which show the probability of its becoming the seat of a second conception.

Does menstruation occur in the empty cornu? Cassan says, that this idea is opposed to his observations. Dr. Oldham,<sup>2</sup> in his recent report on a case of labour complicated with a double state of the internal sexual organs, says, in speaking of double uterus, "However the sexual passages may appear to be double, and the one side physically independent of the other, yet they appear to me to be as one organ in

Op. cit. p. 514.

<sup>2</sup> Guy's Hospital Reports, October 1849.

their physiological relations ; and the best proof of this is to be found in the manner in which menstruation is performed. In this there has been nothing erratic, and we may infer that both wombs menstruate at the same time ; and what, perhaps, is still more to the purpose, when one womb has contained a fœtus, the other has ceased to menstruate, and with this suspension it loses, I believe, its aptitude for impregnation". Our knowledge of the physiological relations of symmetrical organs, would naturally lead us to infer the simultaneous performance of the catamenial function by both cornua of the divided uterus. But, as I have already stated, menstruation is sometimes known to occur during pregnancy, in common cases ; and the ovarian stimulus is perhaps often more active than we are aware of, though the presence of a fœtus has sufficient influence to prevent any obvious indication of it. Now it is very likely, that the empty cornu may, in cases where the ovarian excitement is sufficiently powerful, continue menstruating as long as the tendency remains in the other ; and if so, then there is a possibility of the occurrence of Superfœtation. In a case related by Dionis, in 1681, of a double uterus, in one cornu of which a fœtus had been formed, menstruation was stated to have occurred during the first four or five months of pregnancy.

Dr. Robert Lee<sup>1</sup> has founded an objection to the possibility of the occurrence of menstruation or Superfœtation in a double uterus, on the formation of a decidual membrane in the empty cornu. In a case described by him, the body of the uterus was cleft from fundus to cervix, so as to form two lateral halves. The right cornu had contained a fœtus, and resembled the uterus a week after delivery ; (the woman had died eight days after her confinement). The right ovary was much larger than the left ; and the latter presented no corpus luteum. The left uterine cornu was of the size of an unimpregnated uterus. Its parietes were very soft and vascular ; and the inner surface was everywhere coated with a delicate and beautifully-formed deciduous membrane. At the opening of the cornu into the cervix, the deciduous membrane formed a short sac ; but it presented a smooth circular opening at the uterine orifice of the Fallopian tube. The fibres of this membrane, as they approached the opening of the tube, ran in a converging direction, and passed into the opening, leaving it completely pervious. The distance to which the fibres extended into the tube was not ascertained, nor was it positively determined whether the whole extent of the canal were open. There are some circumstances, however, which seem to me to throw a doubt over the fact of the decidual membrane in the empty uterus having been formed during pregnancy : these are, its delicate structure, its not having been discovered till eight days after delivery, and the woman having died from peritonitis. In other records of cases of pregnancy occurring in double uterus, I have not found it mentioned, whether or not the empty cornu was lined by any membrane. It may be formed in some cases, and may have existed during pregnancy in Dr. Lee's case, as supposed by him. But even then, Superfœtation must be admitted as possible, if we believe in its

<sup>1</sup> Medico-Chirurgical Transactions, vol. xvii. 1832.

occasional occurrence in a single uterus, while containing a fœtus and decidua. There is not, then, I think, any physiological reason why Superfœtation should not take place in a double uterus; and an examination of some cases which have been recorded, will serve to confirm the view which I have taken of the possibility of the occurrence. I would remark, however, that it is not to be supposed, that an aptitude for secondary conception exists in all women who have a double uterus; it will be in those only, in whom the ovarian nismus is sufficiently active, either with or without the actual occurrence of the menstrual flow.

Marquet<sup>1</sup> relates, that at the post-examination of a woman who died of phthisis, a double uterus was found, resembling two inverted pears, united by their neck, terminating in a common orifice. She had had fourteen abortions, always accompanied with uterine hæmorrhage and other alarming symptoms. On one occasion, she brought forth twins, with a single placenta, at four and a half months: and in a month after, was delivered of a fœtus, apparently of six weeks' growth.

Cassan<sup>2</sup> has recorded the following case, which occurred to Madame Boivin. A woman was delivered, on the 13th of March, 1810, of a female infant weighing four pounds. The abdomen still remaining bulky, Madame Boivin introduced her hand, but could find nothing in the uterus, which was already much contracted. But the examination, and the occurrence of fœtal movements during the next two months, led Madame Boivin to infer, that there must be either an extra-uterine pregnancy, or a Superfœtation in a bilobed uterus. On the 12th of May, another female infant was born, weighing about three pounds, feeble, and scarcely able to breathe. The woman said that she had had no connexion with her husband for some time, except on the 15th and 20th of July, 1809, and on the 16th of September.

Dr. Dugès<sup>3</sup> has related a case, communicated by a pupil of the Maternité at Paris. A woman, in her seventh pregnancy, aborted in the fifth month of a dead fœtus, eight inches and a half long, which was followed by an embryo, about three inches and a half long, apparently of the third month, shewing some signs of life. The two placentæ were discharged separately: they were of different sizes. On careful examination with the hand, the vagina and cervix uteri were found to be natural; but beyond the exterior opening of the latter, there were two orifices, each leading to a distinct uterus.

Dr. Geiss<sup>4</sup> has recorded a case, which, although deficient in some details, must be considered as a probable instance of Superfœtation. During his attendance on a lying-in patient, he observed, that the pains were entirely limited to the right side of the uterus, and that this side was elevated as high as the thorax, the left only extending to the umbilical region. On examination, the shoulder of a fœtus enclosed in its membranes, was distinctly felt. Immediately after the birth of this child, the right side of the abdomen diminished in size, while the left side remained in the same condition as before. In about an hour,

<sup>1</sup> MARQUET. *Traité pratique de l'hydropisie et de la jaunisse.*

<sup>2</sup> CASSAN. *Récherches sur les Cas d'Uterus double et de Superfœtation.* Paris: 1826.

<sup>3</sup> *Journal des Progrès*, vol. xiii, from *Ephemer. de Montpellier.* *London Medical and Surgical Journal*, 1830, p. 172.

<sup>4</sup> *Rust's Magazine*, quoted in *London Medical and Surgical Journal*, vol. ii, 1829, p. 259.

labour pains returned; and Dr. Geiss discovered, on examination, beyond the orifice of the uterus, a membrane distended with fluid, projecting through an annular aperture in the left side of the uterus. The umbilical cord of the infant born was traced to the upper part of a distinct cavity. On further examination, the abdomen of a child was distinctly felt at the opening. Turning was found necessary, as with the former child: it was accomplished with some difficulty. Dr. Geiss introduced his hand, and convinced himself that the organ was divided. The placenta in the right half of the uterus was first thrown off, and this part of the organ contracted vigorously; but, in the detachment of the second placenta, the contractions were feeble, and the woman lost much blood. She ultimately recovered. Two years before, she had been delivered of a single infant, after a very difficult labour.

Billengren<sup>1</sup> relates the case of a woman, forty years old, who, after having uterine hæmorrhage for eight days, was delivered of a fœtus with its membranes, apparently not more three months old. A second fœtus, of above seven months, was in the evening extracted by means of the forceps, but soon died. The uterus was divided by a septum into two cavities, each of which contained a placenta.

A very remarkable case, which places the connexion of Superfœtation with double uterus beyond a doubt, has been lately recorded by Dr. Generali.<sup>2</sup> Gaetana Bovatti, of Modena, had had six pregnancies. Her labours, though successful, had always been difficult, requiring the use of instruments. In 1816, she was pregnant for the seventh time; and there was remarkable, along the median line of the uterus, a well-marked furrow, which caused a double pregnancy to be suspected. On the 15th of February, 1817, she was delivered of a living male infant, apparently at the full period. The placenta was expelled in the natural manner: there was no lochial discharge. The abdomen was reduced in size on only one side, and the movements of a fœtus were distinctly perceived on the other. On the 14th of March, she was again seized with labour pains, and was delivered of a second male infant, of equal development with the first. The first of these lived forty-five days, the latter fifty-two days. In 1822, she was delivered, for the last time, of a female child, who still lives. This case created a great sensation; and Professor Bignardi regarded it as an instance of Superfœtation, due to an abnormal conformation of the uterus. In September 1847, the woman Gaetana Bovatti died of apoplexy. Dr. Generali examined the uterus, and found that it possessed the structure, the existence of which had been suspected by Professor Bignardi. The neck of the uterus was of the usual form; but the body of the organ was divided into two parts, each of which was furnished with a Fallopian tube. This interesting specimen of teratology has been deposited in the anatomical museum at Modena.

These cases may possibly be doubted to be instances of Superfœtation. It may be said they were cases of arrested twins; but a careful examination of the phenomena which they present, will, I think, serve

<sup>1</sup> Svenska Läkarsällskapets Nya Handlingar, Band ii. Quoted in *Neue Zeitschrift für Geburtskunde*, 1846, p. 147.

<sup>2</sup> *Bulletino delle scienze Mediche di Torino*.

to establish the probability of the occurrence. We may then conclude, that Superfœtation may take place, and has done so, in cases of double uterus. But, even including many of the cases in which no double uterus is mentioned, as if the organs were in this condition, the proportion of cases of double uterus with Superfœtation is but small, compared with those in which it has been accompanied with single pregnancy. It may be that, in some cases, as I have already observed, the ovarian excitement, or menstruation, may not be present; or, in others, there may be a mechanical obstacle to the fertilization of the second ovum. But there is another circumstance, which may operate in reducing the frequency of Superfœtations in double uteri; and that is, the abortion of the fœtus already present, where an attempt is made at impregnation. In Marquet's case, the woman had aborted fourteen times; and, in other cases in which a double uterus has been found, there has been abortion. This may have arisen in part from circumstances connected with the abnormal structure itself, which have caused the presence of double uterus to be looked on as a source of danger. Orfila<sup>1</sup> particularly notices the danger, and calls attention to the fact, that a large number of the women who have conceived in one of the cavities of a double uterus have died at, or soon after delivery. In other cases, the labours have been difficult. I do not, however, purpose to enter here on a discussion of the dangers attending on a double uterus in the human subject.

V. The next class of cases, to which I shall refer, comprehends those in which pregnancy has taken place during extra-uterine gestation. The following are instances.

Dr. Cliët, of Lyons,<sup>2</sup> found in the body of a woman, who had had several children, and had died suddenly, a male fœtus of about five months, lying in the right iliac fossa. The uterus contained another, of the male sex, of about three months.

Dr. Montgomery<sup>3</sup> relates a case, in which a woman was the subject of an extra-uterine pregnancy for three years, during which time she bore three children. The extra-uterine fœtus was at length expelled through the walls of the abdomen, near the umbilical.

Several similar cases have been recorded, which prove the possibility of the occurrence: and seem to show that if the ovarian nîsus be suspended for the usual period of utero-gestation in such cases, it is resumed when the usual time of delivery returns. As to the formation of a decidual membrane, Dr. Robert Lee has not found it; Chailly says, that it is present: and Dr. F. H. Ramsbotham thinks that it is formed, but is expelled. In any case, it cannot be an obstacle to conception.

The difficulties attending on the investigation of the subject of Superfœtation, and the imperfect records which have been given of many of the cases, prevent us from arriving at any fixed and ultimate conclusions. I would, therefore, not be understood as attempting to determine all the disputed points connected with it, especially the diagnosis between the true cases of Superfœtation, and those in which a twin

<sup>1</sup> ORFILA. *Op. cit.*

<sup>2</sup> *Nouveau Journ. de Médecine.* Dec. 1818.

<sup>3</sup> *Op. cit.*

has been arrested in its growth. An extended series of observations is required; and, as the cases are but rare, it will probably be a considerable time before all the facts connected with Superfoetation are known. A careful reflection on the cases which have been recorded, leaves in my mind no doubt of its having actually occurred, both where the uterus has been of the usual form, and where it has been double, or bilobed. It may take place during the first days of pregnancy, before the formation of the uterine plug; and also subsequently, within a limited period, if this plug have been removed by any cause, provided that the necessary ovarian nismus be present.

Essex House, Putney, November 1849.

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**EXPERIMENTAL AND PRACTICAL OBSERVATIONS ON  
THE USE OF CHLOROFORM IN MIDWIFERY;  
AND ON THE INFLUENCE EXERTED BY THIS ANÆSTHETIC UPON THE  
MOTOR POWERS CONCERNED IN PARTURITION.**

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I AM not aware that any experiments have been performed, with a view to decide upon the influence of Chloroform on uterine muscular action. The following is a contribution to this interesting subject, and may, perhaps, tend to throw some light upon the physiological relations of Chloroform to Obstetric practice. Chloroform promises to be a great boon to the experimentalist, since it renders the most formidable vivisection as painless as dissection after death. It must, however, be borne in mind, that from the intense action of this agent upon the nervous system, it is extremely liable to complicate any nervi-motor experiments in which it may be employed. But this objection does not apply to experiments upon the action of Chloroform itself upon the nervous centres. In experiments of this latter kind, we can witness the action of Chloroform without the disturbing influence of pain; in all other experiments, we certainly lose the interference of pain and all its results, if we employ Chloroform, but we inevitably have a certain amount of derangement of the nervous functions from the anæsthetic. My present object is not so much to deal with the question of the propriety or impropriety of Chloroform in midwifery, as to inquire, how Chloroform acts towards the motor powers concerned in natural parturition, and in the accidents of the parturient and puerperal state dependent upon an abnormal condition of those powers? I would wish to consider it impartially, not as a poison, or as an agent with power to allay the agonies of surgery and obstetrics; but as a medicine capable of modifying the motor powers of the uterus, upon the integrity of which safe and natural parturition depends.

*Observation 1.* A guinea-pig being placed under the influence of Chloroform, the effects were carefully observed in the uninjured animal. At first, the breathing became hurried and increased in vigour, and the limbs, particularly the posterior extremities, were convulsed. When