Memoir on the spontaneous expulsion and artificial extraction of the placenta before the child in placental presentations / by James Y. Simpson.

MEMOIR

ON THE

SPONTANEOUS EXPULSION AND ARTIFICIAL EXTRACTION OF THE PLACENTA BEFORE THE CHILD IN PLACENTAL PRESENTATIONS.

BY

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(Extracted from the London and Edinburgh Monthly Journal of Medical Science.)

ANDREW JACK, PRINTER.

MEMOIR, &c.

PART I.

Section I.—Dangers of Placental Presentations[1]—Opinions of Authors—Statistical Evidence of the Fatality of these Presentations.

All obstetric authors seem to agree on this point, that there is no one complication in midwifery attended with more anxiety to the practitioner, and few, if any, with more real danger to the patient, than cases of unavoidable hemorrhage from presentation of the placenta.[2]

"Placental presentations," says Dr F. Ramsbotham, "are always fraught with extreme peril."[3] "The attachment of the placenta," observes Dr Collins,[4] "to the mouth of the womb, is one of the most dangerous complications to be met with in midwifery." "There are few dangers," to quote the words of Dr Edward Rigby,[5] "connected with the practice of midwifery, which

[1] The substance of the following memoir was, on the 4th December 1844, laid before the Medico-Chirurgical Society of Edinburgh. Since that time a number of additional cases have been incorporated into the essay, and the deductions altered in a corresponding degree.

[2] "During the last months of gestation, and at the commencement of labour, patients," observes Dr Churchill, "are exposed to *two* forms of hemorrhage, differing in their causes, but depending upon the *situation* of the placenta. The first has been called 'accidental hemorrhage,' because it arises from a partial and accidental separation of the placenta, which occupies its *usual* situation; and the second is justly termed 'unavoidable hemorrhage,' because the placenta being placed partially or wholly over the os uteri, the dilatation of this will *unavoidably* separate the after-birth, and give rise to hemorrhage."—*Theory and Practice of Midwifery*, p. 383. Our investigations in the present memoir refer to the last of these two forms of uterine hemorrhage.

[3] Obstetric Medicine and Surgery, 2d edition, p. 391.

[4] Practical Observations on Midwifery, p. 90.

[5] System of Midwifery, p. 248.

are more deservedly dreaded, and which are wont to come more unexpectedly, both to the patient as well as to the practitioner, than that species of hemorrhage which occurs in cases where the placenta is implanted, either centrally or partially, over the os uteri." "It is," says Dr Dewees,[1] "confessed on all hands, that no accident attendant on conception is equally menacing, as unavoidable hemorrhage; and it also emphatically declares to the physician, that much depends on him, that it shall not be very often fatal. It is one," he adds, "of those extraordinary cases, in which nature does less for the preservation of the individual than in almost any other." "That form of hemorrhage," remarks Madame Lachapelle,[2] "which depends upon the implantation of the placenta upon the internal orifice of the uterus, is one of the most dangerous accidents to which pregnant women are exposed." "It is perhaps," long ago observed Deleurye,[3] "of all labours, that in which the mother and the child run the greatest danger." Still earlier, La Motte states,[4] that "amongst all the accidents of child-birth, there is not any one more perilous *(il n'y en a point un plus perileux)* than that in which the after-birth presents before the child."

The actual results of practice fully bear out the observations which I have selected from the preceding authors upon the danger of unavoidable hemorrhage from placental presentation. My friend Dr Churchill, in his late excellent work upon the *Theory and Practice of Midwifery*, has collected in it from different sources the records of 174 cases of this complication. Amongst these 174 cases, 48 proved fatal to the mothers; or nearly one in every three of them died. I have attempted to make a still more extensive analysis of recorded cases of placenta prævia, or placental presentation, and the consequences of this complication as bearing on the life of the mother. The following table shows the results of the inquiry:—

TABLE OF MATERNAL MORTALITY IN PLACENTAL PRESENTATIONS.

Reporters.	No. of Cases.	Mothers Lost.
Mauriceau,[5]	17	3
Giffard,[6]	24	7
Smellie,[7]	17	3
Carry forward,	58	13

[1] System of Midwifery, p. 390.

[2] Pratique des Accouchemens, tom. iv., p. 362. [4] Traité des Accouchemens, p. 36.

[3] Traité Complet des Accouchemens, p. 404.

[5] Observations sur la Grossesse et les Accouchemens, vol. ii., pp. 8, 48, &c. &c.; and Edinburgh Medical and Surgical Journal, vol. li., pp. 383–4.

[6] Cases in Midwifery, pp. 22, 36, 38, 52, 87, &c. &c.

[7] Collection of Cases, &c., vol. ii. pp. 307–315; and vol. iii., pp. 141–178. I have, with Dr Churchill and others, here and in a subsequent table, marked all those cases of

Reporters.	No. of Cases.	Mothers Lost.
Brought forward,	58	13
Rigby,[1]	42	11
Clarke[2] and Collins,[3]	15	3
Busch,[4]	13	2
Schweighauser,[5]	64	16
Lachapelle,[6]	16	10
J. Ramsbotham,[7]	19	8
F. Ramsbotham,[8]	44	8
Lever,[9]	14	2
Lee,[10]	38	14
Wilson,[11]	26	10
London Maternity Charity,[12]	50	33
Total,	399	133

From the above Table, it thus appears that out of 399 cases of placental presentations which are collected into it, the result was fatal to the mother in 133 instances, or, in other words, *one in every three of the mothers perished in connection with this complication.*

The dangers of placental presentations to the mothers may appear stronger to some minds, if I state it in other terms. Two of the most fatal epidemics of modern times, are yellow fever, and Indian or malignant cholera. In the well-known yellow fever of Gibraltar, of 1828, the mortality among those attacked was nearly 1 in $4\frac{1}{2}$.[13] In 1832–33, about one in $3\frac{1}{2}$ of those affected in England with the epidemic cholera, died.[14] Hence those mothers who are the subjects of placental presentations, are submitted to as great peril of life from this obstetric complication, as they would be, if seized with yellow fever or malignant cholera. Further, the operation of lithotomy is generally regarded as one of the most formidable in surgery, and is calculated to be fatal in the proportion

Dr Smellie's as recoveries, where an opposite result is not directly stated. The context seems to warrant this.

[1] An Essay on Uterine Hemorrhage, 6th Edition, p. 262.

[2] Transactions of King and Queen's College of Physicians, vol. i., p. 380.

[3] Practical Observations in Midwifery, p. 96. The returns of Drs Clarke and Collins are classed together, as both coming from the Dublin Lying-in Hospital.

[4] Forbes' British and Foreign Review, vol. v., p. 587.

[5] La Pratique des Accouchemens, p. 224.

[6] Pratique des Accouchemens, tom. ii., pp. 415–461.

[7] Practical Observations in Midwifery, part ii. pp., 195–233.

[8] Principles of Obstetric Medicine and Surgery, 2d Edition, pp. 395–6.

[9] Guy's Hospital Reports, vol. vi., p. 66.

[10] Lectures on the Theory and Practice of Midwifery, p. 371.

[11] From MS. notes of Dr Wilson, formerly Lecturer on Midwifery, and deservedly one of the most highly esteemed and distinguished obstetric practitioners in Glasgow. Many of the fatal cases were instances which Dr W. saw in consultation.

[12] London Medical Gazette, for July 19, 1844.

[13] Out of 5383 persons attacked, 1183 died.—See *Researches on the Yellow Fever of Gibraltar*, by Dr Louis of Paris. Boston, 1839. P. 259.

[14] Dr Merriman has calculated, from official returns, that 49,594 individuals were affected with epidemic cholera, in England, and that 14,807 of them died, giving the proportion in the text. In Scotland and England, the mortality was greater. See *Medico-Chirurgical Transactions*, vol. xxvii., p. 416.

of 1 in every 6 or 8 subjected to it.[1] The occurrence of placenta prævia is twice as dangerous and fatal as the operation of lithotomy,—1 in every 3 perishing under the first, and 1 in every 6 or 8 perishing under the last.

Looking at these results, it will, we believe, be readily conceded, that any attempt—such as is the professed object of the present memoir—to diminish this fearful maternal mortality in placenta prævia, is entitled, at least, to the consideration of the obstetric profession, even should it fail to be so fortunate as to secure their concurrence and conviction.

SECTION II.—RECOGNIZED PRINCIPLES OF TREATMENT:—1. EVACUATION OF THE LIQUOR AMNII; AND, 2. DELIVERY BY TURNING. PROPOSAL OF A THIRD PRINCIPLE—THE COMPLETE SEPARATION OF THE PLACENTA—GROUNDS FOR PROPOSING IT—ILLUSTRATIVE CASES.

Hitherto, two great principles of treatment,—if we leave out the minor details of management,—may be said to have been pursued by obstetric practitioners, in the treatment of placental presentations. And the two modes of practice I allude to are supposed by many to be applicable to two different stages or degrees of the complication. They consist of the two following measures:

1. *The Evacuation of the Liquor Amnii.*

In some cases of placenta prævia, and under some circumstances, the artificial evacuation of the liquor amnii is recommended to be had recourse to, and thus the same treatment is followed for "unavoidable" hemorrhage, as is followed by most practitioners in instances of "accidental" hemorrhage. This mode of practice has been especially applied of late to cases in which the presentation of the placenta was only *partial*, and where, consequently, a portion of the membranes was within reach, and to instances in which the hemorrhage was comparatively slight in its degree and effects. About a century and a half ago, the same treatment seems to have been employed also by some practitioners, in instances in which the placenta presented completely over the os uteri, the placental structure being perforated artificially with the finger or an instrument, in order to permit the liquor amnii to escape. After recommending, that in placenta prævia, the membranes should be pierced, or the fingers thrust through the placenta, "that at last it be perforated, and instead of the constant flux of blood which appeared before, the humours will presently flow out," Daventer,[2] writing about the year 1700, adds, "some pene-

[1] "The average mortality from lithotomy, on all hands, appears at present to be about one in eight."—Dr Willis' *Urinary Diseases*, 1838: p. 347. Mr Inman has calculated the mortality from lithotomy to be 1 in every $7\frac{3}{4}$ cases, 765 patients having died out of 5900 operations which he had collected.—See *Lancet* for October 5, 1844.

[2] The Art of Midwifery Improved. London: 1715. Pp. 153–4.

trate the secundines with a *hair needle*,[1] which I do not approve of, if it can be done with the fingers, because the infant is easily hurt." Under some conditions in placenta prævia, Deleurye[2] recommends the piercing of the placenta with a trocar, in order to allow the liquor amnii to be drained off. Baudelocque[3] speaks of the same practice as probably useful in instances of complete or central presentation of the placenta, when the cervix will not allow of turning; and in later years, the same plan has been again proposed by the elder Dr Ramsbotham,[4] and successfully put in practice by Gendrin[5] of Paris.

2. *The Delivery of the Child by Turning.*

In the generality of cases of unavoidable hemorrhage from placental presentation, the practice which is adopted consists in forcing the delivery by passing the hand through the os uteri up to the feet of the infant, and extracting the child by the operation of podalic turning. This last mode of practice is the one universally followed when the hemorrhage is very severe, and whether the artificial evacuation of the liquor amnii has preceded it or not, and it is the plan of treatment usually pursued where the presentation of the placenta over the os uteri is central or entire. By some accoucheurs indeed, as Drs Burns and Hamilton, Baudelocque, Capuron, and others, the forcible delivery of the woman by the operation of turning, is the *only* mode of treatment that is thought advisable under any circumstanees in connection with *placenta prævia*. It is, according to Plenck, "nullo remedio sed sola extractione fœtus curanda."[6] "All the best practical writers are," says Dr Merriman, "unanimous on this point, that the case of placenta adhering over the cervix uteri, is not to be trusted to nature. In all cases of attachment of the placenta over the os uteri, it is incumbent upon the accoucheur to make up his mind to the operation of turning the child, and bringing it into the world by the feet."[7] "This is a case," Dr Conquest remarks,[8] "in which we ought never to confide in the powers of nature, because expulsatory uterine efforts only augment the peril of the patient; and therefore the hand must be either bored through the substance, or, what is better, passed by the edge of the placenta, and the child turned." It is completely established, (to quote the words of Dr Dewees,)[9] "that the only chance the woman has for life, is by a well-timed

[1] "Placentam vel secundinam *acu crinali* perfodiunt,"—to quote the original Latin. See p. 138 of the second edition of Daventer's *Novum Lumen, &c.* Leyden: 1733. The first edition was published in 1701.

[2] Traité des Accouchemens. Paris, 1777, p. 369.

[3] System of Midwifery, translated by Heath, vol. ii., p. 38.

[4] Practical Observations, part ii. p. 189.

[5] Traité Philos. de Médecine Pratique, tom. ii., 548.

[6] Elementa Artis Obstetricæ, 1781, p. 133.

[7] Synopsis, &c. of Difficult Parturition, 1826, pp. 126–7.

[8] Outlines of Midwifery, p. 157.

[9] System of Midwifery, p. 394.

and well-conducted delivery in every case of placental presentation." When hemorrhage," says Dr Denman,[1] "from this cause, (placental presentation,) comes on, though all women without proper assistance would not die, none are free from danger till they are delivered. As there is a very doubtful chance of the delivery by the pains of labour, and as experience has fully proved the frequent insufficiency of all other methods intended to suppress the hemorrhage, and how little reliance ought to be placed on them, though they are always to be tried ; it is a practice established by high and multiplied authority, and sanctioned by success, to deliver women by art, in all cases of dangerous hemorrhage, without confiding in the resources of the constitution. This practice is no longer a matter of partial opinion, on the propriety of which we may think ourselves *at liberty* to debate ; it has for near two centuries met the consent and approbation of every practitioner of judgment and reputation in this and many other countries. (See Mauriceau and almost every succeeding writer.)"

Cases of Placenta Prævia not unfrequently occur in practice in which neither of the two preceding plans can be successfully adopted,—where the artifical evacuation of the liquor amnii is insufficient to moderate the hemorrhage to a safe degree,—and where forced delivery by turning is inapplicable or extremely dangerous if adopted. In these and other cases, I would beg to submit to my obstetric brethren, an additional principle of treatment, viz.

3. *The Complete Separation, and, if necessary, Extraction of the Placenta before the Child.*

I shall first state the grounds on which I venture to found the propriety of this proposed addition to the treatment of the very anxious and very dangerous cases of which we speak.

Obstetric pathologists seem unanimous in the opinion that all the more formidable varieties of hemorrhage, which occur from the uterus in the latter months of utero-gestation, or the earlier periods of labour, are attributable to the separation of the vascular connections between the placenta and the interior of the uterus, and the escape of blood from the vessels which are laid open in consequence of this separation.

Paradoxical as it may appear, there are sufficient grounds and facts for believing, that when the placenta is separated slightly and partially, the chance of fatal hemorrhage to the mother is greater than when the disunion of the organ is entire and complete. Various authors have detailed cases in which the death of the mother speedily took place though the portion of the placenta separated from the uterus was exceedingly small. Thus Dr

[1] Introduction to Midwifery, p. 527.

Hamilton mentions that in several cases which had fallen under his observation, and where he was called too late to afford proper assistance, it was discovered that the fatal hemorrhage had proceeded from the separation of "a very small portion of the placenta." In one instance of fatal hemorrhage between the 7th and 8th month of utero-gestation, he found on dissection that "the area of the separated placenta was less than a square inch."[1]

On the other hand I believe I have collected a sufficient number of data to prove that when the disjunction of the placenta from the uterus is *perfect* and *complete*, the degree of maternal hemorrhage that occurs is in general exceedingly slight and trifling, or it is altogether arrested. The details of a few cases may illustrate and impress the fact which I wish to point out.

Case of Placenta Prævia; placenta expelled upwards of three hours before the child; no hemorrhage in the interval; child removed by decapitation and extraction.—In 1840 I was requested by my friend Dr Graham Weir to see a patient about the 5th month of pregnancy, who had been attacked with very severe hemorrhage. It was her third or fourth pregnancy. After the flooding had continued for some time, the placenta was expelled. *From the time of its expulsion the hemorrhage ceased.* The shoulder and neck of the infant were presenting over the os uteri. The os uteri was so contracted and the whole organ so small, as to prevent the possibility of the introduction of the hand for the operation of turning. At my suggestion, Dr Weir severed the neck of the infant. Its body was then easily extracted by pulling at the presenting arm; and its head was immediately afterwards expelled by the unassisted action of the uterus. From three to four hours elapsed between the protrusion of the placenta and the complete delivery of the woman, yet during that time she lost little or no blood, and her recovery was speedy and perfect.—*See subsequent General Table, Case No.* 16.

Case of Placenta expelled about two hours before the child; elbow of the child presenting.—In 1841 I was requested by Dr Lewins of Leith to visit a case of complicated unavoidable hemorrhage. I saw the patient shortly after 9 o'clock in the morning. Labour pains had come on about 4, and a considerable degree of hemorrhage had accompanied them. Shortly after 7 o'clock, Dr Lewins, on visiting the patient, found the placenta expelled through the os uteri. When I saw the woman, nearly two hours afterwards, the placental mass was lying between her thighs, and attached to her by the umbilical cord. She was weak from the hemorrhage that had occurred previous to the expulsion of the placenta, but from the time that organ had been extruded, *the flooding had almost*

[1] Practical Observations, 2nd edition, p. 314.

entirely ceased. I found the elbow of the child presenting; and as the os uteri was well dilated, it was easy to bring down a lower extremity, and terminate the labour. The patient recovered without a bad symptom.—*See Table, No.* 20.

Case of placenta expelled some minutes before the child; no intervening hemorrhage; child expelled by natural pains, and revived.—For the details of this case I am indebted to Dr Dewar, of Dunfermline, and shall give the circumstances in his own graphic words. "Some blood," he says, "had been lost as nearly as we could calculate at what would have been the seventh and eighth menstrual periods, and several times between the eighth and ninth months, and that in spite of an entire cessation from all exercise. Labour took place at the full time, and, as was dreaded, was accompanied with severe hemorrhage from the beginning. When I saw her, about an hour after pain had begun, the orifice of the uterus was pretty well dilated, and a soft spongy mass, apparently the centre of the placenta, protruded from it. There was no time for interference, for almost instantly a strong pain forcibly expelled the whole of the placenta from the vagina. *To my surprise the flooding ceased.* Pains continued active, and the child was born in less than ten minutes. After a little time the infant revived, and the mother recovered well, though considerably exhausted."—*See Table, No.* 48.

Case of great hemorrhage, and expulsion of the placenta under strong uterine action; child extracted by turning some hours afterwards.—Mrs H., during her second pregnancy, (her first child having been premature), had a slight flooding about the seventh month. When in the eighth month, labour commenced early in the morning of the 18th May, with slight pains, and sanguineous discharge. These continued more or less severely till the evening of the 19th, when, as Mrs H. was resting upon her knees and elbows, an immense gush took place, along with an unusually strong pain. Immediately afterwards, on being laid down, the placenta was found protruding from the external parts. The attendant midwife immediately sent off to a distance of several miles for two medical gentlemen, who arrived about half-past one o'clock on the morning of the 20th. In the mean time, the hemorrhage was inconsiderable. The medical men attempted to turn, and deliver the child, but encountered great difficulties in doing so, the head having remained fixed in the pelvis for an hour or two after the body was born. The recovery was tedious. The patient (now one of the most respected and intelligent midwives in Edinburgh) has had three children since the above period.—*See Table, Case No.* 2.

Case of unavoidable hemorrhage terminated by the expulsion of the placenta; child allowed to be delivered by the natural pains.—"About half-past six in the morning of April 29th, 1818, a messenger,"

says Dr Ramsbotham, "arrived at my house, sent by two medical gentlemen, with a note to this purport: 'We are in attendance upon Mrs H., whose situation is involved in great uncertainty, from a placental presentation; the bleeding is going on pretty actively, and we wish for your immediate opinion.' On my arrival at the house of the lady, about eight, I was told by one of the gentlemen, "that since the note was sent off, some strong expulsive pains had come on, which had expelled the placenta through the external parts before the head of the child, and that it was lying upon the bed. That before this occurrence the hemorrhage had been violent, yet not to that extent as apparently to endanger the woman's life; but that since the appearance of the placenta *the flooding had very much abated.*' During our conversation on this unusual occurrence, the gentleman more immediately in attendance, who, at my arrival, was in the bed-room of his patient, came down stairs, and reported, 'that the head was presenting at the brim of the pelvis, with a hand down by its side; that there was no want of uterine action; *that the flooding had ceased;* and that his patient did not seem much exhausted.' An appeal was now made to my opinion, as to the further management of the case, to which I replied, 'that as the flooding (the most dangerous symptom) had abated, as the labour-pains continued active, and especially as the woman's strength kept up, there did not appear to be an immediate necessity for a recourse to any means for hastening delivery; watch your patient for a short time, and wait the result: if the flooding should return, or if any dangerous symptom make its appearance, let us know.' In about half an hour after this interview, the gentleman returned with a cheerful countenance, and stated, that the child was expelled without further loss of blood, and that his patient was promising to do extremely well." &c.—*Practical Observations*, case 154, part ii., p. 229.

Case of placenta gradually coming down, during the labour, into the os uteri, and being at last expelled four hours before the child; with no intermediate hemorrhage.—Mrs C., in the eighth month of her second pregnancy, was taken in labour on Sunday evening, about nine o'clock. Mr Chapman was called to her about twelve o'clock. He was informed the membranes had been ruptured for some time. The os uteri was dilated to the size of a crown-piece, and the head presenting, but still very high. The pains were very strong and regular. On a second examination, an edge of the placenta was discovered "beginning to protrude through the os uteri," with a hemorrhage which was trifling, but increased upon the return of the pains, though still so inconsiderable as not to be directly alarming. Mr C. did not hence conceive himself justified in proceeding to immediate delivery. But as upon every return of pain the placenta became more and more protruded through the os uteri, without the head advancing, the advice of another prac-

titioner was sought. Previous, however, to his arrival, the pains proved so strong that the os uteri became dilated, and the placenta was completely expelled through the os externum, about three o'clock on Monday morning, with very little hemorrhage. From this moment the pain entirely ceased. The other practitioner did not arrive until five o'clock. "*There had not*," to use Mr Chapman's own words, "*been the least hemorrhage since the expulsion of the placenta.*" It was now resolved to turn the child; but after two prolonged attempts the feet could not be seized, the uterus being spasmodically contracted in the longitudinal direction, and the circular fibres appearing to act without the consent of the longitudinal. "During the whole of this time the hemorrhage had not in the least increased." Twelve drops of the tincture of opium were now administered. In a very short time the patient became easy and comfortable; and in less than half an hour the natural pains returned, and speedily expelled the child, with the head and arm presenting. Nothing remarkable happened in the convalescence, except a trifling attack of phlegmasia dolens, an affection from which the patient had likewise suffered after her first labour.—*See Table, No.* 13.

Case of placental and shoulder presentation; placenta expelled; turning.—The patient, in the sixth month of her fifteenth pregnancy, was attacked with a hemorrhage that was alarming in extent, but not so great in quantity as to produce syncope. "I saw her," Dr Ramsbotham writes, "two hours after the first attack of flooding. The placenta was now lying completely in the vagina, *and there was not the least hemorrhage.* The membranes were ruptured. The shoulder of the child presented. The cervix uteri was unexpanded and rigid, and it was consequently impossible to get my whole hand into the uterine cavity, but I succeeded into the ham of the infant, and was by this means enabled to turn and deliver." "An hour or more" elapsed between the complete detachment of the placenta and the birth of the child. It had been dead for some time. The mother recovered perfectly.—*See General Table, Case No.* 26.

Case of placental and arm presentation; placenta in the vagina, and without hemorrhage, for about eight hours before the child was born.—In a woman who had completed the full time of pregnancy, Dr Macaulay found the placenta expelled from the uterus, and lying in the vagina. She had been flooding previously, but it had ceased about eight o'clock in the morning of the 13th February 1816. The late distinguished Dr Kellie of Leith visited the patient along with him. The woman peremptorily refused to allow Drs Macaulay and Kellie to deliver her. About four o'clock P.M. the pains quickened, the placenta was expelled out of the vagina, and about half an hour afterwards an anencephalous infant followed. The child was in every way well shaped, except as regarded the head.

" Dr Kellie told me," to quote the note which Dr Macaulay made at the time, " that the head was the smallest he had ever seen, and remarked, that though it was an axiom in midwifery, that when the placenta was implanted over the os uteri, hemorrhage *must* continue till the uterus was emptied, *yet here it stopped as soon as the placenta came down.*"—*See Table, No.* 10.

SECTION III.—TABLE OF 141 CASES OF EXPULSION AND EXTRACTION OF THE PLACENTA BEFORE THE CHILD—ARRANGEMENT AND DIVISIONS OF THE TABLE.

I have been able to find upon record fifty-six cases of Placental Presentation in which the placental mass was expelled before the child, as in the preceding seven or eight instances which I have brought forward in the last section. Through the kindness of my professional friends, I have collated the notes of seventy-four additional unpublished instances in which the same accident happened. As the entire detail of more instances than those I have already stated would, at the present stage of our inquiries, only swell out our pages, without any corresponding advantage, I have deemed it better to throw the principal facts, connected with all the cases which I have collated, into a tabular form, in order to present thus in a more concise manner their general features and individual peculiarities. It is only necessary to premise, in regard to the following table, that under the heads referring to the degree of hemorrhage before and after the separation of the placenta, and the time or interval between the expulsion of the placenta, and expulsion of the child, I have as nearly as possible adhered to the identical words used by the reporters themselves, in each case. The table commences with those instances in which the interval between the birth of the placenta and the birth of the child was longest, and progressively proceeds to those in which this interval became shorter and shorter, till at last we come to a set of cases in which the placenta and infant were expelled simultaneously.

For the purpose of assisting in some subsequent deductions, the table is split up into the four following divisions.

1*st Division.*—Cases in which a considerable interval—varying from ten minutes to ten hours or upwards—elapsed between the expulsion of the placenta and the birth of the child, including the forty-seven instances standing at the head of the table.

2*d Division.*—Cases (comprehending those from No. 48 to No. 71) in which the intervening interval was shorter.

3*d Division.*—Cases (running from No. 72 to No. 101) in which the child was born immediately after the extrusion of the placenta, or expelled along with it.

4*th Division.*—Cases, from No. 102 onwards, in which the period intervening between the expulsion of the placenta and child is not specified by the reporters, though the context shows that in many of this class the interval was evidently considerable.

GENERAL TABULAR VIEW OF ONE HUNDRED AND FORTY-

THE PLACENTA PRECEDED

FIRST

Cases in which a Considerable Interval (from 10 Hours to 10 Minutes)

	By whom observed or reported.	No. of the pregnancy.	Period of delivery.	Degree of hemorrhage *before* the entire separation of the placenta.	Degree of hemorrhage *after* the entire separation of the placenta.	Mode of delivery of the child.
1	Dr Collins, Dublin.	...	9th month.	...	...	...
2	J. Y. Simpson.	2d.	8th ,,	Excessive.	Inconsiderable.	Turning.
3	Mr Cripps, Liverpool.	3d.	9th ,,	A good deal.	None.	Turning.
4	Dr Merriman, London.	...	...	...	...	By natural pains.
5	Mr Hewitt, Earlston.	...	...	Little or none.	...	By natural pains.
6	Dr J. Ramsbotham.	...	...	...	Little.	Turning.
7	Dr Newman, Glasgow.	...	9th month.	Great.	None.	By natural pains.
8	Baudelocque.	...	...	...	...	...
9	Walter.	...	...	{ Almost none, (not 2 oz. in all.) }	Almost none.	Turning.
10	Dr Macaulay, Edinburgh.	Not 1st.	Full time.	Great.	None.	By natural pains.
11	Velpeau.	...	...	None.	None.	...
12	Mr Perfect.	...	...	Slight.	Slight.	Turning.
13	Mr Small, Wemyss.	7th.	7th month.	Very great.	Very trifling.	By natural pains.
14	Mr Chapman.	4th.	8th ,,	light	Very slight.	By natural pains.
15	Dr Radford, Manchester.	9th.	9th ,,	ery great.	Quite arrested.	Long Forceps.
16	Mr Sidebottom, ditto.	7th.	9th ,,	rofuse.	Ceased.	By natural pains.
17	J.Y. Simpson.	3d or 4th	5th ,,	Great.	None.	Decapitation.
18	Dr Radford, Manchester.	7th.	9th ,,	Very considerable.	Quite arrested.	By natural pains.
19	Dr Ingleby, Birmingham.	Several.	9th ,,	Not very great.	None.	Turning.
20	Mr Bailey, Thetford.	...	7th ,,	Profuse.	...	Turning.
21	J. Y. Simpson.	...	7th ,,	Not great.	None.	Turning.
22	J. Y. Simpson.	6th.	7th and 8th.	Very great.	None.	By natural pains.
23	Dr Todd, Colinsburgh.	Several.	8th ,,	Not alarming.	...	...
24	Dr Fraser, Aberdeen.	1st.	9th ,,	Moderate.	Scarcely any.	Turning.
25	Dr Radford, Manchester.	3d.	9th ,,	Very profuse.	Quite arrested.	By natural pains.
26	Dr Gardiner, Glasgow.	1st.	9th ,,	Very great.	None.	By natural pa .
27	Dr F. Ramsbotham.	15th.	6th ,,	Alarming.	Not the least.	Turning.
28	Professor Gendrin.	2d.	8½ months.	None during labour.	None.	By natural pains.
29	Mr Wood, Manchester.	8th.	9th ,,	Very great.	Q ite stopped.	By natural pains.
30	Dr Campbell, Edinburgh.	1st.	8th ,,	Little.	...	...
31	Dr Gardiner, Dundee.	1st.	7th ,,	Moderate.	Very slight.	By natural pains.
32	Mr Hay, Glasgow.	1st.	9th ,,	Excessive.	Very little.	Naturally.
33	Dr Ingleby, Birmingham.	9th.	5th ,,	Great.	None.	Turning.
34	Dr Irvine, Pitlochy.	10th.	9th ,,	None.	None.	Extraction.
35	Dr Young, Glasgow.	1st.	6th and 7th.	Very great.	None.	By natural pains.
36	Dr John Ramsbotham.	...	...	Violent.	Soon ceased.	By natural pains.
37	Dr Todd, Colinsburgh.	Several.	...	Not great.	...	...
38	Dr Radford, Manchester.	5th.	8th month.	Very great.	Quite arrested.	By natural pains.
39	Dr Wharrie, Hamilton.	9th.	8th to 9th.	Considerable.	None.	By natural pains.
40	Mr Dorrington, Manchest.	7th.	9th month.	Great.	None.	By natural pains.
41	Dr Forbes, Kennoway.	4th.	9th ,,	Very great.	{ None of any consequence. }	Forceps.
42	Dr Millar, Kilmarnock.	1st.	7th ,,	Great, 6 lbs. in 2 days.	Slight oozing.	Turning.

REMARKS.

4. See details under Section VI.
5. Mr H. was sent for on account of the expulsion of the placenta, nothing unusual having occurred beforehand. He was some miles distant, but arrived just before the child was born. There was little or no hemorrhage.
8. "A midwife had extracted the placenta some hours before, and had been unable to turn the child, whose arm presented with the head. The uterus was strongly contracted on the child, and discharged but a few drops of blood."
9. See details under Section VI.
10. See Case under Section II.
11. See Section V.
14. "In this case, very little more blood was lost than women usually do, when the placenta is expelled in the usual manner."
15. "In this case, the expulsatory efforts were energetic to the time of accomplishing the separation and expulsion of the placenta, when they ceased. No hemorrhage occurring afterwards, it was deemed advisable to wait the 4 hours."
18. "The hemorrhage being arrested, there was no need to interfere, further than to adopt those measures which are necessary to support the vital powers."
19. "The placenta had been expelled nearly through the os externum. A large quantity—nine-tenths, I should say—had been cut off with a pair of scissars. I saw the case very soon afterwards; passed my hand, and delivered the child, and then removed the small bit of placenta and membranes."

ONE CASES, IN WHICH THE EXPULSION OR EXTRACTION OF THE BIRTH OF THE CHILD.

DIVISION.

ELAPSED BETWEEN THE EXPULSION OF THE PLACENTA AND THE BIRTH OF THE CHILD.

Time between birth of placenta and birth of child.	Presentation of the child.	Results.		Where reported, or by whom communicated.
		To mother.	To child.	
Evening before.	Foot.	Recovered.	Dead.	"Practical Observations," p. 192.
Several hours.	...	Recovered.	Dead.	See Case of Mrs H., in Section II.
10 hours.	Arm.	Recovered.	Dead.	Communicated by Mr Cripps.
Many hours.	...	Died.	...	Synopsis, p. 126.
A considerable time.	...	Recovered.	...	Communicated by Dr Tait, Edinburgh.
A considerable time.	Head.	Recovered.	...	Practical Observations, vol. II. p. 232.
Several hours.	Head.	Recovered.	Dead.	Communicated by Dr Smith, Glasgow.
Some hours.	Arm and head.	Recovered.	...	Baudelocque, vol. II. p. 37.
Probably some hours.	Crossbirth.	Died.	Dead.	De Morbis Peritonei, p. 33.
About 8 hours.	Arm and Head.	Recovered.	Dead.	Communicated by Dr Macaulay.
Above 6 hours.	...	Recovered.	Dead.	Traité des Accouchemens, I., p. 356.
5 hours.	Abdomen.	Recovered.	Alive.	Cases in Midwifery, vol. II., p. 288.
4 to 5 hours.	Head.	Recovered.	Dead.	Communicated by Dr Skae, Leven.
4 hours.	Head and Arm.	Recovered.	...	Annals of Medicine, vol. IV., p. 308.
4 hours.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
4 hours.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
3 or 4 hours.	Shoulder.	Recovered.	Dead.	Seen with Dr Graham Weir.
3 hours.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
About 3 hours.	Head.	Recovered.	Dead.	Communicated by Dr Ingleby.
Above 2 hours.	...	Recovered.	Dead.	Prov. Trans., vol. VII., p. 338.
Above 2 hours.	Arm.	Recovered.	Dead.	Seen with Dr Lewins of Leith.
Nearly 2 hours.	Head.	Recovered.	Dead.	Seen with Mr Hill, Portobello.
Less than 2 hours.	...	Recovered.	Dead.	Communicated by Dr Todd.
1½ hour.	Arm.	Recovered.	Dead.	Communicated by Dr Fraser.
1½ hour.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
About 1½ hour.	Head.	Recovered.	Dead.	Communicated by Dr Smith, Glasgow.
An hour or more.	Shoulder.	Recovered.	Putrid.	Communicated by Dr Ramsbotham.
1 hour.	...	Recovered.	Putrid.	Médecine Pratique, tom. ii., p. 224.
1 hour.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
...	Breech.	Recovered.	Dead.	System of Midwifery, p. 360.
About 1 hour.	Breech.	Recovered.	Dead.	Communicated by Dr Gardiner.
About 1 hour.	Head.	Died.	Dead.	Communicated by Dr Smith, Glasgow.
About 1 hour.	Head.	Recovered.	Dead.	Communicated by Dr Ingleby.
About 1 hour.	Feet.	Recovered.	Putrid.	Communicated by Dr Irvine.
Above ½ hour.	Head.	Recovered.	Dead.	Communicated by Dr Smith, Glasgow.
Above ½ hour at least.	...	Recovered.	...	Pract. Obs., Case 154, vol. II., p. 229.
At least ½ hour.	...	Recovered.	Dead.	Communicated by Dr Todd.
½ hour.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
½ hour.	Head.	Recovered.	Dead.	Communicated by Dr Thompson, Hamilton.
½ hour.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
Within ½ hour.	Head.	Recovered.	Dead.	Communicated by Dr Skae, Leven.
About ½ hour.	Shoulder.	Recovered.	Dead.	Communicated by Dr Paxton.

REMARKS.

20. "I found the vagina completely filled with the placenta, and the os uteri firmly contracting upon the funis."
25. "The hemorrhage was very excessive, so long as the placenta was only partially separated, but was immediately suppressed by completely detaching it."
27. Dr R. saw her "two hours after the first attack of flooding. The placenta was then wholly in the vagina, but there was not the least hemorrhage; the membranes were ruptured; the cervix unexpanded."
29. "Flooded 9 hours before placenta was expelled, but was immediately suppressed, on its expulsion."
30. Dr C. kindly informs me that the woman recovered perfectly.
31. Note by Dr G. "There was no flooding previous to the commencement of labour pains, and it was moderate throughout.
32. See case given in full, in Section VI.
34. "Absolutely no more hemorrhage than in a common natural labour."
37. Dr T. found the placenta lying in the vagina; the pains were strong and effective; and the infant was expelled in half an hour.
39. Dr Wharrie found the placenta partly in the vagina, and partly in the os uteri. He extracted it by a kind of twisting motion, and the hemorrhage immediately ceased.
42. "In this case, the pains entirely left her after the expulsion of the placenta; a full dose of ergot was given, the os uteri being fully dilated, and was followed by one or two smart pains, by which the child was expelled."

	By whom observed or reported.	No. of the pregnancy.	Period of delivery.	Degree of hemorrhage *before* the entire separation of the placenta.	Degree of hemorrhage *after* the entire separation of the placenta.	Mode of delivery of the child.
43	Dr Millar, Kilmarnock.	10th.	9th ,,	Great, 8 lbs. in 3 days.	About a pound.	Gentle Traction.
44	Dr Malcolm, Dundee.	Large fam.	...	Very little.	...	Turning.
45	Lamotte.	...	...	Great.	...	Turning.
46	Dr F. Ramsbotham.	9th.	9t month.	Very great.	None.	By natural pains.
47	Mr Johnstone, Brompton.	5th.	,,	Very great.	None.	By natural pains.

SECOND

Cases in which a Shorter Interval (less than 10 Minutes) elapsed

48	Dr Dewar, Dunfermline.	...	9th ,,	Profuse.	None.	By natural pains.
49	Dr Fraser, Aberdeen.	6th.	8th ,,	Very moderate.	Great.	Turning.
50	Mr Nimmo, Dundee.	Large fam.	...	Considerable.	...	By natural pains.
51	Dr John Ramsbotham.	...	...	Severe.	Stopped.	By natural pains.
52	Dr John Ramsbotham.	3d.	9th month.	...	None.	By natural pains.
53	Dr F Ramsbotham.	12th.	9th ,,	Exhausting.	None.	Turning
54	Dr Smith, Lasswade.	3d.	9th ,,	Excessive.	...	By natural pains.
55	Dr Maxwell Adams.	...	7th ,,	Very profuse.	...	...
56	Dr Barlow.	2d.	9th ,,	Profuse.	Profuse.	Turning
57	Mr Crawford, Glasgow.	5th.	9th ,,	Not great.	None.	Turning.
58	Mr Crawford, ,,	4th.	9th ,,	Exhausting.	None.	Turning.
59	Dr M'Donald, ,,	7th.	9th ,,	Excessive.	"A good deal."	Turning.
60	Dr F. Ramsbotham.	2d.	6½ months.	Exhausting.	None.	Evisceration.
61	Dr F Ramsbotham.	3d.	8th ,,	Most violent.	None.	By natural pains.
62	Mr Tindal, Glasgow.	10th.	9th ,,	Fearful.	None.	Turning.
63	Mr Denny.	...	...	...	...	By natural pains.
64	Dr Conquest, London.	Large fam.	6½ months.	Active.	...	...
65	Mr Elkington, Birmingh.	...	7th, 8th mo.	A good deal.	...	By natural pains.
66	Mr Rose, Swaffham.	7th.	9th ,,	Not alarming.	None.	By natural pains.
67	Reviewer.	...	...	...	...	By natural pains.
68	Dr Menzies, Glasgow.	3d.	8th, 9th mo.	Considerable.	None.	By natural pains.
69	Mr James.	5th.	8th ,,	Very great.	Slight.	By natural pains.
70	Dr Francis.	...	...	...	...	By natural pains.
71	Dr Wilson, Whitburn.	4th.	...	Slight.	...	By natural pains.

THIRD

Cases in which the Placenta was expelled immediately

72	Mr Greenhow, Newcastle.	6th.	7th month.	Considerable.	...	Extracted.
73	Mr Campbell, Glasgow.	1st.	7th, 8th ,,	Excessive.	...	Turning.
74	Mr Fleming, ,,	5th.	...	Considerable.	...	Turning.
75	Mr Hardcastle, Newcastle.	Several.	7th, 8th.	Very great.	...	By natural pains.
76	Mr Lowe, Manchester.	3d.	8th ,,	Very profuse.	...	By natural pains.
77	Mr Sidebottom, ,,	3d.	9th ,,	Very copious.	...	By natural pains.
78	Dr Smellie.	Several.	9th ,,	Slight.	...	By natural pains.
79	Dr Stewart, Kelso.	6th.	8th ,,	Severe.	...	By natural pains.
80	Mr Tulloch, Newcastle.	Several.	7th ,,	...	...	...
81	Mr Wood, Manchester.	6th.	8th ,,	Very profuse.	...	By turning.
82	Mr Wood, ,,	5th.	9th ,,	Very considerable.	...	By natural pains.
83	Dr Young, Edinburgh.	...	9th ,,	Very great.	...	By turning.
84	Dr Currie, Lanark.	4th.	...	Violent.	...	By natural pains.
85	Dr Carruthers, Dundee.	3d or 4th.	9th month.	Considerable.	...	By natural pains.
86	Dr F. Ramsbotham.	4th.	8th ,,	Violent.	...	By natural pains.

REMARKS.

43. "The placenta was lying partly in the vagina, and partly in the uterus. After its extraction, the feet presented, which were laid hold of, and, at each pain, firm but gentle traction employed, till the child was delivered."

45. "I found the placenta occupying wholly the vagina, and pushing almost out of it. I immediately pulled it away, whereupon the membranes being torn, the waters came in great plenty, and I brought away a dead child by the feet." The flooding had been excessive.

46. Dr R. found the membranes pressing on the perineum, and the whole of the placenta almost in the vagina. It passed outside immediately on rupturing the membranes.

48. See Case under Section II.

49. See Case under Section VI.

52. Violent hemorrhage came on two days before delivery. It ceased entirely, however, and did not return.

53. Copious hemorrhage came on 3½ hours before delivery, on the membranes spontaneously rupturing. Dr R. found great part of the placenta in the vagina; there was no pain nor hemorrhage: and he would not have turned, had the shoulder not been the presenting part. The placenta came away, as the shoulders were passing the brim, before the head was extracted.

56. The placenta was expelled while she was on her feet. "She attempted to walk up stairs, and before she could reach the bed, a violent pain seized her, which instantly expelled the placenta, and disparted the funis about

— *Continued.*)

Time between the birth of placenta and birth of the child.	Presentation of the child.	Results.		Where reported, or by whom communicated.
		To mother.	To child.	
20 minutes.	Feet.	Recovered.	Dead.	Communicated by Dr Paxton.
Upwards of 20 minutes.	Arm.	Recovered.	Dead.	Communicated by Dr Keiller.
Not ½ hour.	...	Recovered.	Dead.	Traité des Accouchemens, p. 407.
10 minutes.	Head.	Recovered.	Dead.	Communicated by Dr Ramsbotham.
About 10 minutes.	Head.	Recovered.	Dead.	Communicated by Dr Elliot, Carlisle.

DIVISION.

BETWEEN THE SEPARATION OF THE PLACENTA AND THE BIRTH OF THE CHILD.

Less than 10 minutes.	...	Recovered.	Alive.	Communicated by Dr Dewar.
5 or 10 minutes.	...	Died.	Alive.	Communicated by Dr Fraser.
A short time.	Breech.	Recovered.	Dead.	Communicated by Dr Keiller.
A short time.	...	Recovered.	...	Pract. Obs., Case 155, vol. II., p. 231.
A short time.	Breech.	Recovered.	Putrid.	Pract. Obs., Case 156, vol. II., p. 233.
A short time.	Shoulder.	Recovered.	Dead.	Communicated by Dr F. Ramsbotham.
A few pains.	Head.	Recovered.	Alive.	Communicated by Dr Smith.
A few minutes.	Foot.	Recovered.	Putrid.	Monthly Journal, vol. IV., p. 936.
A few minutes.	Shoulder.	Recovered.	Alive.	Essays on Midwifery, &c. p. 273.
A few minutes.	Head.	Recovered.	Alive.	Communicated by Dr Smith, Glasgow.
A few minutes.	Head.	Recovered.	Alive.	Communicated by Dr Smith, Glasgow.
A few minutes.	Head.	Recovered.	Dead.	Communicated by Dr Smith, Glasgow.
A few minutes.	Shoulder.	Died.	Dead.	Communicated by Dr F. Ramsbotham.
A few minutes.	Head.	Recovered.	Dead.	Communicated by Dr F. Ramsbotham.
A few minutes.	Head.	Died.	Dead.	Communicated by Dr Smith, Glasgow.
Next pain.	...	Recovered.	Alive.	Lancet, 1831, 1832, vol. I., p. 110.
Next pain.	...	Recovered.	Dead.	Communicated by Dr Conquest.
Soon.	...	Recovered.	Dead.	Communicated by Dr Ingleby.
Quickly.	Head.	Recovered.	Alive.	Communicated by Mr Rose.
...	...	Recovered.	...	Med. Chir. Review, vol. III., p. 317.
5 minutes.	Head.	Recovered.	Alive.	Communicated by Dr Smith, Glasgow.
4 minutes.	Head.	Recovered.	Dead.	Lond. Med. Repository, vol. VI., p. 412.
3 minutes.	...	Recovered.	Alive.	Francis's Edition of Denman, p. 485.
Less than 2 minutes.	Head.	Recovered.	Alive.	Communicated by Dr Wilson.

DIVISION.

BEFORE THE CHILD, OR BOTH WERE EXPELLED TOGETHER.

Almost immediately.	Breech.	Recovered.	Dead.	Communicated by Dr Dawson, Newcastle.
Together.	Head.	Recovered.	Alive.	Communicated by Mr Campbell.
Turned immediately.	Head.	Recovered.	Alive.	Communicated by Dr Currie, Lanark.
Immediately.	Head.	Recovered.	Dead.	Communicated by Dr Dawson, Newcastle.
Immediately.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
Immediately.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
Immediately.	...	Recovered.	Alive.	Midwifery, vol. II., p. 310.
Immediately.	Head.	Recovered.	Dead.	Communicated by Dr Stewart.
Immediately.	...	Recovered.	Dead.	Communicated by Dr Dawson, Newcastle.
Immediately.	Head.	Died.	Dead.	Communicated by Dr Radford.
Immediately.	Head.	Recovered.	Dead.	Communicated by Dr Radford.
Immediately.	...	Recovered.	...	Communicated by Dr Young.
Almost at same time.	Head.	Recovered.	Alive.	Communicated by Dr Currie.
Almost at same time.	Head.	Recovered.	Alive.	Communicated by Dr Carruthers.
Not many moments.	Head.	Recovered.	Dead.	Communicated by Dr Ramsbotham.

REMARKS.

six inches from the child's navel. A great effusion of blood followed, and the woman fainted ere she could be laid down on the bed."

58, 59, 73. "In these three cases, the placenta was detached, in introducing the hand to turn, and lay in the vagina, till the feet were brought down." Dr Smith's note.

60. See case at length, in Section VI.

62. See case at length, in Section VI.

64. Active hemorrhage had taken place before Dr C.'s arrival. "On examination, the pelvis was filled with coagula, and something like placenta. Another pain expelled an uninterrupted ovum, which was instantly ruptured, but the child was dead."

68. The placenta was born along with the head; but Dr M. was sensible of its being wholly detached, and lying in the vagina for fully five minutes.

70. Though not actually stated, it is clear, from the context, that the woman here, and in Case 143, recovered.

71. When Mr W. saw the woman, there was a little hemorrhage, but not so much as to cause any alarm, either for the mother or child. The pains were strong and downbearing, and in about twenty minutes the placenta was expelled. The next pain expelled the child.

72. The placenta was detached to some extent, when Mr G. was called in. He immediately separated the remainder and removed it.

78, 91, 92. The fact is not stated, but it is manifest, from the context, that the mothers recovered.

	By whom observed or reported.	No. of the pregnancy.	Period of delivery.	Degree of hemorrhage *before* the entire separation of the placenta.	Degree of hemorrhage *after* the entire separation of the placenta.	Mode of delivery of the child.
87	Dr Brownlee, Shotts.	6th or 7th.	...	...	...	By natural pains.
88	Dr Conquest, London.	...	9th month.	Violent.	...	By natural pains.
89	Dr Dawson, Bathgate.	7th.	8th ,,	Profuse.	...	By natural pains.
90	Professor Murphy, Lond.	Not a 1st.	9th ,,	Moderate.	...	By natural pains.
91	Dr Smellie.	2d.	8th ,,	...	...	By natural pains.
92	Dr Smellie.	...	8th ,,	Profuse.	...	By natural pains.
93	Anonymous.	...	...	...	...	By natural pains.
94	Gendrin.	...	...	Very great.	...	By natural pains.
95	Mr Easton, Glasgow.	...	9th month.	Considerable.	...	By natural pains.
96	Mr Easton. ,,	...	9th ,,	Considerable.	...	By natural pains.
97	Dr F. Ramsbotham.	Several.	8th, 9th ,,	Exhausting.	...	Turning.
98	Mr Rose, Swaffham.	4th.	9th ,,	Considerable.	...	By natural pains.
99	Mr Rae, Edinburgh.	4th.	9t ,,	Considerable.	...	By natural pains.
100	Schweighauser, Strasburg.	...	...	...	...	...
101	Dr Robert Lee, London.	...	7th ,,	Considerable.	...	...

FOURTH

CASES IN WHICH THE EXACT PERIOD BETWEEN THE SEPARATION

102	Mr Bailey, Thetford.	4th.	9th ,,	Profuse.	Profuse.	Turning.
103	Mr Bull.	6th	...	Most alarming.	...	Turning.
104	Cauviere.	...	...	...	None.	Forceps.
105	Dr Clarke.	...	...	...	...	...
106	Dr Hamilton, Edinburgh.	...	...	...	None.	...
107	Dr Hamilton, do.	...	...	...	None.	...
108	Labayle, Montpellier.	...	...	...	...	...
109	Romaine, Bagneres.	...	...	...	...	...
110	Lamotte.	...	...	Severe.	Considerable.	Turning.
111	Dr Robert Lee, London.	...	7th month.	Profuse.	...	...
112	Leroux.	...	7th ,,	Great.	Much diminished	Decapitation.
113	Dr Löwenhart.	...	...	...	...	Turning.
114	Dr Maunsell, Dublin.	...	...	Profuse.	...	By natural pains.
115	Mr Milligen.	...	...	...	...	By natural pains.
116	Sir F. Ould.	...	...	Profuse.	...	Turning.
117	Pardigon.	...	7th month.	Almost none.	None.	Turning.
118	Dr F. Ramsbotham.	...	...	Copious.	Little.	Turning.
119	Dr J. Ramsbotham.	...	...	...	Little or none.	...
120	Dr J. Ramsbotham.	...	...	...	Entirely ceased.	...
121	Mr Elkington, Birmingh.	8th month.	...	...	...	...
122	Dr Cahill, Berwick.	...	6th and 7th.	...	...	...
123	Mr Hardcastle, Newcastle.	...	...	Very great.	Not much.	By natural pains.
124	Dr Moody, St Andrews.	...	...	...	...	Turning.
125	Dr Mather, Brechin.	...	...	Not great.	...	By natural pains.
126	Dr Nimmo, senior.	...	...	Severe.	...	...
127	Mr Rose, Swaffham.	7th month	9th month.	Moderate.	None.	Naturally.
128	Dr Wilson, Glasgow.	Large fam.	...	Profuse.	Profuse.	Turning.
129	Dr Wilson, Glasgow.	...	...	Profuse.	Profuse.	Turning.
130	F. Osiander. Gottingen.	...	7th month.	...	...	Naturally.
131	F. Osiander, ,,	...	4th ,,	...	...	Naturally.
132	F. Osiander, ,,	...	7th ,,	...	...	Turning.
133	F. Osiander, ,,	9th month.	9th ,,	Vio'ent.	None.	Naturally.
134	Dr Trefurt, Gottingen.	...	3d ,,	Very great.	...	Turning.
135	Kory.	...	...	...	...	...
136	Loss, Dorchester.	...	Large family.	...	...	...
137	Giffard.	7th month.	...	Violent.	...	Turning.
138	Mercier.	...	...	None.	Almost none.	Turning.
139	Amand.	...	...	Profuse.	...	Turning.
140	Dr Tennant, Falkirk.	2d.	9th month.	Severe.	...	Forceps.
141	Dr Morrison, Dalkeith.	Several.	...	Severe.	None.	By natural pains.

REMARKS.

88. On endeavouring to turn, "the os became so much irritated by the attempt to introduce the hand, that the organ forcibly contracted, expelling the hand, placenta, and child, and an almost incredible quantity of blood."
94. The hemorrhage ceased on the waters being allowed to escape by a female catheter, passed through the placenta, four hours before the birth of the infant, which was expelled with the placenta before it covered the head. Slight hemorrhage followed the delivery.
95. In this case, the placenta, though born along with the head of the child, was detached from the uterus about an hour. There was no hemorrhage from the time it was separated.
96. The placenta was born with the body of the child, but it had been detached for some hours.
97. The placenta passed, during the extraction of the child, before the breech.
99. I saw the woman a fortnight after delivery carrying her child, and well.—J. Y. S.
101. See Sect. V.
103. The arm was found to present after the expulsion of the placenta, and turning was then had recourse to. There is no word of hemorrhage after the placenta was expelled.
104. "Professor Cauviere has told me, that in one case where he introduced the forceps, for inertia of the uterus, when the head was in the pelvis, he was quite astonished to see the placenta pass out of the vagina, before the child, without the slightest hemorrhage."—*Pardigon's Essay.*
108–109. "It may happen," says Labayle, "that the placenta, though attached by its centre to the os, is pushed out before the head of the child, and the labour terminates in the most happy manner. I have myself wit-

—*Continued.*)

Time between the birth of placenta and birth of the child.	Presentation of the child.	Results. To mother.	Results. To child.	Where reported, or by whom communicated.
One pain.	Head.	Recovered.	Alive.	Communicated by Dr Wilson, Whitburn.
One pain.	...	Recovered.	Alive.	Communicated by Dr Conquest.
One pain.	Arm.	Recovered.	Dead.	Communicated by Dr Dawson.
One pain.	...	Recovered.	Dead.	Communicated by Dr Murphy.
One pain.	...	Recovered.	Dead.	Cases in Midwifery, vol. II., p. 311.
One pain.	...	Recovered.	...	Cases in Midwifery, vol. II., p. 313.
Same pain.	...	Recovered.	...	Medico-Chirurg. Review, vol. III., p.
Together.	...	Recovered.	Alive.	Médecine Prâtique, tom. II., p. 349.
Together.	Head.	Recovered.	Dead.	Communicated by Dr Smith, Glasgow.
Together.	Head.	Recovered.	Dead.	Communicated by Dr Smith, Glasgow.
Together.	Head.	Recovered.	Alive.	Communicated by Dr Ramsbotham.
Together.	Head.	Recovered.	Alive.	Communicated by Mr Rose.
Together.	Head.	Recovered.	Alive.	Communicated by Dr Campbell, Edinburgh.
Together.	...	...	...	Pratique des Accouchemens, p 224.
...	...	Recovered.	...	Clinical Midwifery, p. 148, Case 269.

DIVISION.

OF PLACENTA AND THE BIRTH OF CHILD NOT KNOWN.

...	Head.	Recovered.	Alive.	London Med. Repos., vol. XVI., p. 451.
...	Arm.	Recovered.	Dead.	Medical Gazette, vol. XIX., p. 622.
...	...	...	...	Pardigon de l'Insertion du Placenta.
...	...	Died.	...	Collins's Midwifery, p. 91.
...	...	Recovered.	...	Notes of Lectures and Obs., p. 313.
...	...	Recovered.	...	Notes of Lectures and Pract. Obs., p. 313.
...	...	Recovered.	...	Essai sur l'Hém. Uter., Montpellier, 1827.
...	...	Recovered.	...	
...	...	Recovered.	Alive.	Traité des Accouchemens, p. 405.
...	...	Recovered.	Dead.	Clinical Midwifery, p. 144, Case 263.
...	Arm.	Recovered.	Dead.	Leroux, sur les Pertes du Sang, p. 262.
...	Arm.	Recovered.	Dead.	Neue Zeitschrift für Geburtsk., bd. VII, h. 3. See Kleinert's Rep., 1842, VI., p. 58.
...	Head.	Recovered.	...	Dublin Journal, vol. V., p. 373.
...	...	Recovered.	Alive.	Lancet, vol. I., 1831, 1832, p. 232.
...	Head.	Recovered.	Alive.	Ould's Midwifery, p. 77.
...	Shoulder.	Recovered.	...	De l'Insertion du Placente a l'Orifice Uter.
...	Head.	Recovered.	...	Pract. Obs., vol. II., p. 232.
...	..	Recovered.	...	Pract. Obs., vol. II., p. 235.
...	...	Recovered.	...	Pract. Obs., vol. II., p 235.
...	...	Recovered.	Dead.	Communicated by Dr Ingleby.
...	...	Recovered.	Dead.	Communicated by Dr Cahill.
...	Head.	Recovered.	Dead.	Communicated by Dr Dawson.
...	...	Recovered.	Breathed.	Communicated by Dr Smith, St Andrews.
...	...	Recovered.	Alive.	Communicated by Dr Binning, Arbroath.
...	...	Recovered.	Alive.	Communicated by Dr Keiller, Dundee.
...	Head.	Recovered.	Alive.	Communicated by Mr Rose.
...	...	Recovered.	Dead.	Communicated by Dr Wilson.
...	...	Recovered.	Dead.	Communicated by Dr Wilson.
...	Head.	Recovered.	Dead.	Kleinert's Repertorium, 1832. April Number, t. 24.
...	Shoulder.	Recovered.	Dead.	
...	Head.	Recovered.	Dead.	
...	Head.	Recovered.	Putrid.	
...	Shoulder.	Recovered.	...	Hannoversche Annalen, Sept. 1841. Vid. Neue Zeitschrift. fur Geburtskunde, 1843, p. 121.
...	...	Recovered.	...	
...	...	Recovered.	Alive.	Observationes Medicinales, Lond. 1672, p. 380.
...	Arm.	Died.	...	Cases in Midwifery, p. 516.
...	...	Died.	Dead.	Journal Gén. de Médecine, tom. 45, p. 305.
...	Head and arm.	Recovered.	Dead.	Observations sur la Pratique, &c., p. 336.
...	Head.	Recovered.	Dead.	Communicated by Dr Tennant.
...	Head	Recovered.	Dead.	Communicated by Dr Morrison.

REMARKS.

nessed such a fact; and M. Romain, Professor of Midwifery at Bagneres, has communicated to me also an observation of this kind."

111. Dr Lee found the placenta protruding through the orifice of the vagina. He immediately extracted it, and a dead child followed.

101. In this case, the placenta was protruding at the os uteri; on drawing it forward gently, the whole ovum escaped without rupture of the membranes.

113. A midwife had separated the placenta which presented, and drawn it out of the external parts.

119, 120. I am kindly informed by Dr Ramsbotham that he knows "one of the mothers recovered, and he believes the other also."

128, 129. See Section V.

137 See Case in Section VI.

138. See case in Section VI.

For details of other Cases see future Sections.

SECTION IV.—GENERAL DEDUCTIONS REGARDING THE PRECEDING 141 CASES.—1. NUMBER OF THE PREGNANCY.—2. PERIOD OF DELIVERY.—3. MODES OF PRESENTATION OF THE CHILD.—4. MODES OF DELIVERY.—5. NUMBER OF CHILDREN LOST AND SAVED.

We shall now attempt to state in a generalized form some of the more important points deducible from the consideration and examination of the preceding table. Before doing so, however, I would take this opportunity of remarking, that the total separation and expulsion of the placenta before the infant, does not seem to be so very rare and uncommon a circumstance as medical men generally believe, and as authors allege it to be. Dr Collins states, that it is "extremely rare to meet with a total separation of the placenta in unavoidable hemorrhage."[1] In reporting Mr Denny's case, (*Table, No.* 63) Mr Gower observes, "it is perhaps a solitary instance in the annals of obstetric practice. The placenta was brought into the world before the child. The uterus closed upon the body of the fœtus so as to prevent hemorrhage, and after another pain the child was born alive. It was a quick labour, and no ill effects followed from an accident from which disastrous consequences might have been reasonably apprehended to both mother and child. Perhaps (adds Mr Gower) there is no other such case on record, and it merits notice, as an example of the competency of nature to provide for extraordinary emergencies."[2]

The number of cases included within the preceding tables, shows the entire separation of the placenta in placental presentations to be by no means so rare as these and other authors seem to suppose. I have no doubt that the records of medicine contain more cases than I have had leisure or opportunity of searching out; and I feel assured that a more extensive and industrious inquiry at private practitioners than I have been able to institute, might have brought to light a considerable number of additional instances.

1. *Number of the Pregnancy in the cases included in the Table.*—In 81 cases the number of the pregnancy is stated, or facts mentioned, so as to enable us to infer whether the patient had previously born a family or not.

In 12 cases the mother had			"several" children previously.	
In 4	„	„	"a large family"	„
In 1 case it was the			15th pregnancy,	
In 1	„	„	12th	„
In 3	„	„	10th	„
In 5	„	„	9th	„
In 2	„	„	8th	„
In 8	„	„	7th	„
In 6	„	„	6th	„
Carry forward, 43				

[1] Treatise on Midwifery, p. 90.

[2] Lancet for 1831–32, vol. i. p. 119.

Brought forward, 43

In	6	cases it was the	5th pregnancy.
In	9	„ „	4th „
In	10	„ „	3d „
In	5	„ „	2d „
In	8	„ „	1st „
Total,	81		

2. *Periods of utero-gestation at which the patients were delivered.*—In 89 cases out of the 141 the requisite information is supplied on this point. The result is as follows:—

Before the 6th month . . .	3	were delivered.
From the 6th to 7th month . .	5	„
From the 7th to 8th month . .	19	„
From the 8th to 9th month .	19	„
From the 9th to full time . . .	43	„
Total .	89	cases.

The preceding data are so far corroborative of the well-known fact, that in placental presentations the labour is very frequently premature. In 28 of his 42 cases of *placenta prævia*, Dr Rigby mentions the date at which labour came on. In 13 of the 28 the labour was more or less premature; in 15 the women are said to have reached the full term of pregnancy. Dr Lee has reported[1] 36 cases of unavoidable hemorrhage; in 3 instances he does not state the date of the labour; in 2 only had the women reached their full time; and in the remaining 31 patients, the labour was premature. Out of 16 cases of the same complication reported by Madame Lachapelle,[1] 1 patient was near the seventh month of pregnancy; 6 were delivered during the seventh month; 5 during the eighth month; 1 at the beginning of the ninth month; 1 towards the middle of it, and 2 during the course of it. Levret discusses at some length the question, "why some of the women who have the placenta implanted upon the cervix uteri arrive at the full time, and why the greater part (*la plupart*) of those who are in the same condition do not reach that period."[3]

3. *Modes of Presentation of the Child.*—This is specified in 90 cases.

In	4	cases the feet presented.
In	6	„ breech presented.
In	21	„ trunk or upper extremity presented.
In	59	„ head presented.

In 4 of the head cases (Tables, No. 8, 14, 10, and 139,) an arm presented along with the head.

In the above, as in all other statistical returns, referring to the presentation of the child in cases of placenta prævia, the number of preternatural presentations, and particularly of cross-births, is remarkable.

[1] Clinical Midwifery, p. 142, &c. [2] Pratique des Accouchmens, tom. ii. p. 415, s.qq.
[3] L'Art des Accouchemens. Paris, 1771, p. 367.

4. *Modes of Delivery of the Child.*—The means by which the children were ultimately delivered have varied greatly according to the peculiarities arising from the presentation, and the supposed necessity or non-necessity of direct instrumental or other interference.

In	1	case the child was delivered by the		Long forceps.
In	3	„	„	Short forceps.
In	1	„	„	Evisceration.
In	2	„	„	Decapitation.
In	3	„	„	Simple traction.
In	40	„	„	Turning.
In	66	„	„	Natural pains.
Total	116			

In the remaining 25 cases the manner of delivery is not specified.

5. *Number of Children Lost and Saved.*—In 113 instances in the Table, the result as regards the life or death of the child is stated. In 1 (No. 10) of the 113 cases it was malformed (anencephalous) and incapable of sustaining extra-uterine life, and in 6 others it was putrid or had died before labour commenced. The following statement shows the result as respects the remaining 106 cases :—

In 73 cases the infant was born *dead.*
In 33 „ the infant was born *alive.*

According to these data, nearly 1 out of every 3 children survived ;—or 31 per cent. of the children were saved, and 69 per cent. of them were lost. I shall have again occasion to recur to this topic in the sequel of the memoir.

SECTION V.—DEGREE OF HEMORRHAGE BEFORE THE SEPARATION OF THE PLACENTA, ITS ABSENCE THE EXCEPTION TO THE RULE: DEGREE OF HEMORRHAGE AFTER THE COMPLETE SEPARATION OF THE PLACENTA, ITS PRESENCE THE EXCEPTION TO THE RULE: PROPORTION OF CASES: NO RELATION BETWEEN THE EXTENT OF THE HEMORRHAGE AND THE DURATION OF INTERVAL BETWEEN THE DETACHMENT OF THE PLACENTA AND THE BIRTH OF THE CHILD.

Out of the 141 cases included in the preceding Table, (Sect. III.) we have returns in 111 instances regarding the extent of the hemorrhage that was present previously to the perfect detachment and expulsion of the placenta. The preceding flooding is reported as

Great	in 72	cases.
Considerable	in 24	„
Slight	in 8	„
Little or none	in 7	„
Total	111	

The seven cases in which there occurred little or no hemorrhage during and anterior to the disjunction of the placenta, are those entered in the Table as No. 5, 11, 14, 28, 34, 117, and 138. Mercier

has devoted a special essay[1] to the consideration of such exceptional instances to the general rule of flooding occurring as an "unavoidable" symptom in placental presentations. "The hemorrhage," observes Caseaux,[2] "which they have generally considered as *inevitable* in these cases, (placental presentations), may, however, not show itself even during the progress of labour, and the dilatation of the cervix uteri may be effected without there escaping one drop of blood." Caseaux afterwards adverts to the opinions which Walter, Moreau, and others have offered in explanation of this exception. (See also Velpeau's *Traité Complet des Accouchemens*, vol. i. p. 356, and vol. ii. p. 81.) The most rational idea seems to be, that in such cases the child has been dead for some time, and the utero-placental circulation in consequence arrested previously to the supervention of parturition.

But in relation to the objects of our essay, it is a much more interesting and important subject for us to inquire into the degree of hemorrhage *after*—than the degree of hemorrhage *before* the complete separation of the placenta.

"The great and excessive losses of blood (states Mauriceau, in one of his aphorisms),[3] which happen sometimes to the pregnant woman, proceed almost always from the detachment in *whole* or in part of the after-birth from the uterus; and these kinds of losses of blood never cease entirely till the female is delivered."

In criticising this aphorism Levret observes,—"The first part of this statement is, in general, but too true, but the second part is not so constant as Mauriceau gives it. For the daily practice of accoucheurs shows, that there are occasionally women attacked with great hemorrhage, in consequence of partial separation of the placenta, who nevertheless arrive at the natural period of delivery; thus the word *never* is too positive, as it does not allow of any exception, and it can only apply to those cases in which the separation of the placenta is *complete*, and not to those where it is only partially detached."[4]

Levret elsewhere[5] remarks, in his essay on placenta prævia,—"Daily practice teaches us that the placenta is never detached spontaneously, without the contraction of the part where it was affixed, and without the detachment of this vascular mass, whether *complete* or partial—being followed by discharge of blood."

The allegations made by Mauriceau and Levret, regarding the continuance of hemorrhage after *total* separation of the placenta, (and I might quote similar averments, if necessary, from later

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[1] "Les Accouchemens ou le Placenta se trouve opposé, sur le col de la matrice, sont-ils constamment accompagnés de l'hemorrhagie?"—*Journal de Médecine*, vol. xlv. p. 305.

[2] Traité de l'Art des Accouchemens, 1841, p. 559.

[3] Traité des Maladies des Femmes Grosses, &c., tom. i. p. 534, aphor. 44.

[4] L'Art des Accouchemens, &c., p. 395.

[5] Loc. cit., p. 347.

authors), are perhaps such as the mind might be inclined to draw from reasoning upon the subject of complete detachment of the mass. But if we turn from theory to fact—and from preconceived opinions to careful observations, we shall find the above statements perfectly and directly contradicted by the results of practical experience. For I believe that the data which I have collected for the present paper, are amply sufficient to establish as a great physiological and practical fact—that when the placenta, in cases of unavoidable hemorrhage, is once *completely* detached from its connections with the interior of the uterus, the accompanying flooding in general entirely ceases, or becomes quite moderate and inconsiderable in quantity. The cases adduced in the Table, Sect. III., afford the strongest possible evidence in favour of the truth of this important principle. A slight analysis of them, in reference to this point, will sufficiently demonstrate our proposition.

From the nature of the *third* Division of the Table of cases, including, as it does, those instances in which the expulsion of the placenta was immediately, or almost immediately, followed by the birth of the infant, we can, from this section of our data, expect few or no decided returns in reference to the degree of hemorrhage existing after the total detachment of the placental mass. In the two or three cases, however, of this division, in which the complete detachment of the organ occurred some time before its complete expulsion—the attendant hemorrhage was observed immediately to cease. Thus, in reference to two instances, (Cases No. 95, 96,) which occurred in the practice of Mr Easton of Glasgow, it is stated in the notes of them with which I have been favoured, that though in both the placenta was only expelled immediately before the child, yet it had been previously separated,—in one above an hour—and in the other, for several hours, and in neither of the mothers did any hemorrhage occur after the placentæ were wholly detached from the uterine surface. In both instances the placentæ were originally affixed close to the os uteri—but not over it —and were detached early in the labour.

In the 111 remaining instances, the facts in regard to the existence or non-existence of hæmorrhage during the interval between the detachment or expulsion of the placenta and the birth of the child, stand as follows:—In 39 out of the 111 cases, the absence or presence of hemorrhage after the expulsion of the placenta, is not stated or alluded to by the reporters; but it is evident, from the other circumstances which they describe, that in most of these cases there could have been no serious, if, indeed, any extent of flooding, because the woman was allowed to remain undelivered, in many of them, for a considerable time after the placenta was separated—a state of matters which would not have been permitted if there had been any degree of discharge calling for the immediate delivery of the patient. Three out of these 39 mothers died—one from puerperal fever (see Table, No. 4); a second, (No. 137), apparently from

post-partum hemorrhage;—the cause of death in the other case, (No. 104), is not stated.

In 70 of the 111 cases, the existence and degree of hemorrhage, after the complete separation of the placenta, is distinctly stated, and may be tabulated as follows:—

In	44	cases	the hemorrhage was completely arrested.
„	10	„	„ was very slight, or almost none.
„	7	„	„ was inconsiderable.
„	1	„	„ soon ceased.
„	1	„	„ was much diminished.
„	1	„	„ was considerable.
„	1	„	„ was "a good deal."
„	5	„	„ was profuse.
Total,	70		

It thus appears, that after the complete detachment of the placenta, the hemorrhage was totally arrested in a large majority of the cases; that it was not alarming in its extent in a great proportion of the remaining instances; and that in 5 only out of the 70—or rather in 5 only out of the 111 labours, did it continue so profuse under the circumstances, as to be considered alarming by the attendant, or in such excess as to require special notice in their reports.

Hence in one only out of every 22 labours does there appear to have been a continuance of hemorrhage to a great or profuse degree after the placenta was detached. One of the five mothers died (see Dr Fraser's case in Section vi.) The other four all recovered.

But it may be proper to consider more at length the five cases in which the hemorrhage is stated to have gone on to a profuse extent after the separation of the placenta, in order to judge better of the circumstances which may lead to its continuance in other instances.

First of all, however, it seems necessary to remark, in regard to the alleged continuance of the hemorrhage after the entire separation of the placenta, that the observation itself—simple and easy as it may appear—is one which is most undoubtedly liable to several sources of fallacy. Some of the authors who have described cases of the expulsion of the placenta before the child, and not a few of the medical gentlemen who have communicated to me instances of the kind, have expressed the surprise which they felt at the flooding suddenly ceasing upon the separation of the placental mass, in contradiction to what their pre-conceived opinions led them to expect. Any degree of incaution in the observation of the case might thus easily lead the medical attendant to suppose, that the blood effused externally, or lying in the vagina, was the result of the *continuance* of the hemorrhage subsequently to the total disjunction of the placenta, whilst in reality it might have been the result of the degree of flooding existing antecedently to that event, that is, whilst the placenta was still only partially detached. The blood *already* discharged might,

in other words, be readily mistaken for blood in the act of *being* discharged. I am the more inclined to insist upon this source of error, in consequence of the strong fact, that out of all the first division of cases in our Table—forty-seven in number—and where there was a *long* interval between the expulsion of the placenta and the birth of the child, and, consequently, ample time allowed to confirm or correct any observation upon the degree of existing hemorrhage, in not one single instance is the flooding after the complete placental detachment alleged to have been profuse, or even considerable in its extent. Again, if there had been going on any internal accumulation of blood in the uterine cavity, or rather between the membranes and the uterus, during the period of the *partial* separation of the placenta, and before its complete detachment, the escape of this blood after the expulsion of the placenta might lead to the same error. Another occasional source of fallacy may consist in this, that the membranes may become ruptured by the same pain which expels the placenta through the os uteri or vagina, or they may burst during a subsequent uterine contraction, and the sudden gush of escaping liquor amnii, when mixed up with the effused blood, might be readily mistaken for a pure hemorrhagic discharge.

Of the five cases in which the hemorrhage is alleged to have continued to a considerable or great degree after the detachment of the placenta, one affords an illustration of this last remark. I quote it from La Motte.

Case of hemorrhage, with the placenta expelled from the vagina; excessive discharge; turning; infant and mother recovered.—La Motte was summoned to a woman who had been in labour from the previous day, and who had been losing blood for about two hours. "I went immediately," to adopt his own narrative, "though it was a good league (*grande lieuè*) out of town. As I entered the court, several women came out with frightful shrieks, indicating to me, better than they could tell me, the extreme danger of my poor patient. I instantly descended from my horse, and hurried to where she was. I found that the after-birth had just been pushed out of the vagina by the last pain, and the discharge of blood had come in such abundance, as to have imparted that terrible fright to the bystanders, that had made them utter this piercing cry. I hastened to pull away the after-birth, glided my hand into the uterus, seized the feet of the infant, drew them into the passage, and accomplished the delivery in an instant. The infant was sufficiently alive to be baptized, but died soon after. The mother recovered in a sufficiently brief period, notwithstanding the fearful loss of blood." In some remarks which La Motte offers upon this case, he observes, that he judged the membranes in this case to have been entire from the surprising evacuation that followed the placenta when he drew it out, and which could not have been all blood, as it came

away with much greater violence than it did previously, and the woman could not have borne the loss of such a quantity of blood without sinking. "But I am persuaded," he adds, "that the waters escaping from the membranes in which they were contained, became mixed with the blood effused from the vessels, the midwife having informed me, that the waters were ready to burst when the accident (the expulsion of the placenta) happened, and they flowed out from my tearing the bag, in separating the placenta."

In the above case of La Motte's, the evidence of a continuance of true hemorrhage after the detachment of the placenta is by no means decisive, but we have placed it in that category, in order to avoid the fear of error. The continuance of hemorrhage under the same circumstances is probably better marked in the four following cases. For the two first I am indebted to Dr Wilson of Glasgow, in whose practice they occurred. I shall give them in his own words.

Case of expulsion of placenta; hemorrhage; turning.—"*May* 7, 1821. Mrs G., the mother of a large family, was seized, near the termination of pregnancy, with profuse flooding. Dr M. was sent for. He found the placenta presenting; it very soon came away, the discharge continuing. I was called in, and such was the profusion of the discharge, and state of exhaustion, that turning was instantly resorted to. The child was dead—there was no discharge after delivery. The recovery was tedious, but at length complete." —*See Case No.* 128 *in the Table.*

Case of the placenta lying with its fœtal *surface over the os uteri; hemorrhage; turning.*—"*April* 17, 1833. This evening I was sent for by Dr Cunningham to see Mrs ——, Portugal Street, who was, and had been flooding for several hours. The placenta was found lying loose over the os uteri, with the *fœtal surface downward;* the finger at once touched the origin of the umbilical cord. The placenta was turned aside, the feet laid hold of, and a dead child extracted. She made a good recovery."—*See Case No.* 129 *in the Table.*

This last case is, as far as I know, unique in the circumstance of the placenta being found quite inverted over the os uteri, or with its fœtal, instead of its maternal surface lying in contact with that part. It may probably so far be regarded as a proof that in this instance there was a cause for the hemorrhage continuing in a most unusual and extreme degree of atony, or relaxation of the uterus, —a state which would seem necessary in order to admit of the possibility of the inversion of the placental mass. In the two following cases of Mr Barlow and Mr Bailey, we have the hemorrhage persisting under different conditions, viz., the patient being in the upright posture at the moment of the separation and expulsion of

the placenta; and besides, having in the first of them that disposition of the uterus, (whatever its special nature may be,) which gives rise to post-partum hemorrhage.

Case of expulsion of the placenta preceding the delivery of the child; hemorrhage both after the expulsion and delivery.—A woman in the last month of her second pregnancy, suffered from uterine pains and a slight discharge of blood at intervals. The hemorrhage ceased when the horizontal position, &c. were adopted. Next morning Mr Barlow was summoned to see her, and found her sitting on a chair in a state of great alarm; a profuse discharge of blood succeeded every pain. "On requesting her," he continues, "to be conveyed to bed, she attempted to walk up stairs, and before she could reach the bed, a violent pain seized her, which instantly expelled the placenta, and disparted the funis about six inches from the child's navel. A great effusion of blood followed, and the woman fainted ere she could be laid down on the bed." Dr Barlow passed up his hand into the uterus, found the os uteri in a lax and dilated state, with the shoulder presenting, laid hold of the feet, and accomplished the delivery of the child, by turning, in a few minutes. "The child appeared feeble, but soon recovered on being placed in a warm bath. A considerable hemorrhage," he adds, "followed the birth, on perceiving which I returned my hand into the uterus, and by keeping it moving therein for a time, its contractions were renewed, and the hand was then withdrawn, and the flooding abated, and though the woman appeared much reduced through the loss of blood, she soon recovered.—*See Case No. 56 in the Table.*

Case of unavoidable hemorrhage supervening during exertion; sudden expulsion of the placenta; turning; mother and child saved.—The case occurred to Mr Bailey of Thetford. A woman, aged 32, three weeks before the time of her expected fourth confinement, when exerting herself by washing, &c., was seized with a sudden and violent flooding, accompanied by an extreme degree of bearing down, which, to make use of her own expression, felt "as if the head of the child was in the birth." In the act of stepping upon the bed, she was taken with a pain, during which the placenta was forcibly expelled, and was suspended between the thighs by the funis. At this moment a deluge of blood followed; and she sunk down senseless upon the bed, to all appearance dead, the pulse being imperceptible, and the skin covered with a cold clammy sweat. The os uteri was found to be completely dilated, the passages were well relaxed, and the head presented in the first position. Turning was adopted, and easily accomplished. During the operation, "the hemorrhage was alarming, and large coagula were present in the uterus, which were expelled as soon as the child was born. When the uterus was excited to contraction, the hemorrhage ceased. The

child at first appeared to be still-born, but was restored by the proper means. Both the mother and the infant did well.—*See General Table, No.* 102.

In relation to the two last cases of alleged hemorrhage after the placenta was totally separated, it deserves to be specially held in view that, as already alluded to, in both cases the patients at the time at which the placenta was detached, were in the upright position,—a circumstance which is well known to be a very certain cause of post-partum hemorrhage when there is any tendency to that condition;—in both patients the cervix uteri was very relaxed, the introduction of the hand in the operation of turning being performed with great ease;—in both, the *complete* separation of the placenta must have occurred a very short time before delivery, as each of the children was born alive;—and in the last patient (Mr Bailey's) the discharge of blood which took place after the expulsion of the placenta, must have been to some extent the result of a *previous* internal accumulation occurring during the partial separation of the placental mass, as the blood itself had had time to coagulate. This internal hemorrhage and accumulation of blood probably occurred also in the remaining case upon our list of hemorrhage after the complete separation. For the details of it, see Dr Fraser's case in the next section, and the remarks upon it.

That the extent of the hemorrhage has no direct relation to the extent of the interval between the expulsion of the placenta and the delivery of the child, is amply attested by the following facts:—All the reputed instances of hemorrhage after the complete detachment of the placenta, have occurred in cases where the interval between the birth of the placenta and of the child, was short or uncertain; or, in other words, among the patients included in the Second and Fourth Divisions of the General Table. Among the cases belonging to the First Division of the Table, in which the interval between the detachment of the placenta and the delivery of the child was longer, and varied from ten minutes to ten hours, and where, consequently, there was more time to observe any degree of flooding that might exist, *in not a single instance, was the hemorrhage observed to be great, or even considerable in extent.* On the contrary, in one only of the forty-seven cases belonging to this division, was it in any unusual degree;[1] in nine, it is reported as "almost none," "trifling," or "slight," or "very slight;" and in twenty-three cases, it was totally and completely arrested. In nine the degree of it, if any, is not stated.

I shall have occasion to revert to the practical bearing and importance of these facts in a future section of the essay.

[1] Case 43. The patient lost 8 lbs. of blood in three days, and "about a pound" after the expulsion of the placenta.

SECTION VI.—COMPARATIVE MORTALITY IN PLACENTA PRÆVIA FROM TURNING, &C., AND FROM EXPULSION OR EXTRACTION OF THE PLACENTA; TEN FATAL CASES AFTER SPONTANEOUS EXPULSION: DETAILS OF EACH CASE; SEVEN OF THEM INDEPENDENT OF THE SEPARATION OF THE PLACENTA: NATURE OF THE THREE REMAINING CASES.

In common cases of placental presentation we have already found, from ample statistical data, that the average mortality to the mother is about 1 to 3, (see Section I.) Among the 141 cases of expulsion and extraction of the placenta which we have collated into the Table, (Sect III.) 10 mothers died, or the average mortality to the mother was 1 in 14. The difference between the two sets of cases, namely, 1st, Those terminated according to the present recognised rules of midwifery; and, 2d, Those terminated by the spontaneous expulsion or extraction of the placenta,—is sufficiently striking when thus simply stated. The contrast may be more easily appreciated if we tabulate the results in the following manner:—

Mode of Management.	Number of Cases.	Number of Maternal Deaths.	Proportion of Maternal Deaths.
Cases treated by extracting the child before the placenta,—rupture of the membranes, &c.	399	134	1 in 3
Cases in which the placenta was expelled or removed before the child.	141	10	1 in 14

The evidence in favour of the safety of the termination of such cases by the expulsion or extraction of the placenta before the child, will become still more striking if we turn our attention specially to the ten fatal cases themselves; for we will find that the fatal result in few, if any of these cases, can be directly traced and ascribed to the circumstance of the placenta being completely separated, or to any possible consequence arising from that separation. An examination of these ten fatal cases in detail will sufficiently prove this remark.

Four of the ten mothers died several days subsequently to delivery. I shall first describe these four cases, as far as I have notes of them, so as to show more clearly the immediate cause of death in each.

Case of placenta prævia; placenta expelled an hour before the child; patient died on 10*th day, after having been up, and exposed to excitement and injury on the* 9*th.*—The case occurred in the practice of Mr Hay of Glasgow. It was a first pregnancy, and the patient had arrived at the full period. Before the separation of the placenta, the hemorrhage was excessive, and she was quite sunk and exhausted. Very little blood was lost after the placenta had come away, though the infant was not born for an hour. It was expelled by the natural pains, and was still-born. The following is

Mr Hay's note on the case:—" This patient seemed to sink from excitement. She and her husband quarrelled on the 9th day after the birth of the child, and on the 10th she died." Dr Smith of Glasgow,[1] who has reported this, with various other cases to me, states more explicitly, that " she left her bed and fought with her husband till perfectly exhausted, from which state she never recovered." (*See No.* 32 *in the Table.*)

The fatal result in this case does not require a word of comment; the fact of the woman being able to leave her bed, and to act in the way described, is sufficient proof that she was in a fair way of recovery, and that she would in all likelihood have done well, had it not been for her own indiscretion. In the instance which I have next to quote, the fatal event is also ascribed by the reporter to imprudence on the part of the patient, and, at all events, the degree of hemorrhage was such as in no way to endanger her life.

Case of spontaneous expulsion of the placenta; little or no hemorrhage either before or after its separation; death on the 7th day from " purpura alba."—" About 16 years ago I was called," says Walter,[2] " to the assistance of the wife of the former Castellano of the Royal Academy of Treptow. On arriving I found her in bed; labour had commenced at 4 A.M., seven hours before; the placenta was already separated, and had fallen to the ground; it was still attached to the infant by the cord. I was astonished at this very rare phenomenon, which at that time I could not explain, as I did not then understand the structure of the uterus as I now do. As it was a cross presentation, I had recourse to turning, and within a few moments I delivered the woman of a dead child. I can affirm most positively," the author adds, " that before my arrival, and during the labour, the woman did not lose above two ounces of blood. She did well till the third day, but an improper and contentious mode of living (*inordinata atque contentiosa vivendi ratio*) was the cause of her being seized with " *purpura alba*,"[3] of which she died on the 7th day after delivery." (*See No.* 9 *in the Table.*)

In two of the fatal cases the mothers died from puerperal fever, or peritonitis. These two instances have been recorded by Dr

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[1] I am happy in having this opportunity of offering my best thanks to Dr Smith for the very great zeal and kindness with which he has assisted me in Glasgow, in the collection of cases for the present memoir.

[2] De Morbis Peritonæi et Apoplexia. Berlin, 1785, p. 33.

[3] Or " miliaria," a disease which, under the old " heating" method of treating puerperal women, was formerly extremely fatal. The Stockholm Academy proposed in 1769 as a prize question, " How the different kinds of miliary fever should be prevented and cured, as well in lying-in women as in others." The successful author, Schultz, showed strongly the necessity of adopting a cooling regimen. Dr Whyte's excellent Essay on Miliary Fever (Treatise on Lying-in Women, p. 25—55) did much to banish the disease from English practice.

Merriman and M. Mercier, and I shall detail them as nearly as is consistent with brevity in the authors' own words.

Case in which the placenta was expelled long before the child, &c.—"I was once," Dr Merriman states, "consulted by a very careful and judicious practitioner, respecting a woman, who, when I first saw her, was rapidly sinking under puerperal fever. In this case the placenta was expelled many hours before the child was born, and no extraordinary means were used to expedite the delivery of the child; a physician accoucheur, who was consulted upon the occasion, having deemed it more prudent to leave the case to nature. The fatal event, however," Dr Merriman unadvisedly adds, "would lead one to doubt whether it was wise, under such circumstances, to decline the interference of art."[1] (*See No.* 4 *in Table.*)

Case of placenta prævia; no hemorrhage with the first part of the labour; vomiting; fever; placenta spontaneously expelled; child delivered with forceps; mother died of peritonitis nine days after delivery.—For upwards of two days before Mercier saw the patient, she had been attended by a midwife, and latterly by a medical man who was called in during the course of the second day, and finding the woman feverish, had bled her largely. The bleeding had lessened the pains, which did not return till that evening. The patient had not suffered from any discharge of blood from the uterus, but she felt extremely uneasy; was not able to rest in bed; and rejected by vomiting every thing that was given to her. About two o'clock in the morning of the third day, while she was walking about with a person supporting her, a strong pain expelled the placenta, which fell to the ground, followed immediately by the escape of the waters. The embarrassment of the midwife was extreme. She divided, however, the cord, and waited the arrival of M. Mercier, whom she had immediately summoned. The pains again ceased, and the woman having been put to bed, got a little sleep. "The placenta," says M. Mercier, "was shown me, of a small size, and covered with dust. The cord was implanted in its middle, and about half a yard of it was attached. Only a few spoonfuls of blood had been lost in addition to the small quantity that had escaped from the cord when it was divided. In consequence of it being impossible to excite the uterus to sufficient action, it became necessary to terminate the labour by the forceps. This was accomplished easily. The child did not appear to be at the full time. Its extraction was followed with a very moderate effusion of blood, which scarcely penetrated a cloth folded four times. "This small quantity," observes Mercier, "joined to what had accompanied the falling of the placenta, did not exceed the loss of blood in ordinary labours." An hour after delivery, there was sanguinolent oozing which soon ceased. Subsequently, however, the woman was at-

[1] Synopsis of Difficult Parturition, p. 126.

tacked with peritonitis, and died of this affection nine days after delivery.[1]—*See Table, No.* 138.

Besides the four instances of death which we have just described at periods more or less distant from delivery, two others of the ten fatal cases occurred within a very short time after the birth of the infant, and a third (Dr Ramsbotham's) appears also to come under this head. Yet, as shall appear from the details which we will now give, the death in these cases was not apparently in consequence of any hemorrhage or other cause arising from the complete separation of the placenta, the hemorrhage in all of them having ceased when this separation took place. All the three mothers were delivered by operative means.

Case of severe hemorrhage and presentation of the arm; child eviscerated to permit delivery; placenta detached during the operation; no hemorrhage from its detachment; mother died.—The case occurred in the practice of Dr Ramsbotham, to whose kindness I am indebted for the following details. On December 24, 1839, Dr Ramsbotham was called to see Mrs E., who was gone $6\frac{1}{2}$ months in her second pregnancy. She was in a state of exhaustion from severe hemorrhage, having lost about two quarts of blood. "The previous attendant," to give Dr Ramsbotham's own words, "ruptured the membranes at 7 or 8 A.M., after which there was no further hemorrhage. The arm now came down, which he took off. I delivered her with great difficulty, owing to the undeveloped state of the cervix, at $4\frac{1}{2}$ P.M. I could not get the hand into the uterus, but managed to perforate the chest by a blunt hook, and to extract many of the viscera. In trying to perforate the chest, I hooked down the placenta, a part of which was hanging loose in the vagina; *still there was no flooding.*"—*See No.* 60 *in the Table.*

Case of profuse and exhausting hemorrhage, terminated by expulsion of the placenta; turning; immediate death.—The woman was a patient of Mr Wood's of Manchester. She had borne five children previously, and had reached the eighth month of her sixth pregnancy. The hemorrhage was very profuse previous to the expulsion of the placenta, and had caused great exhaustion; after this it completely ceased. Turning was immediately had recourse to, and a dead infant was extracted by the feet. She died immediately after her delivery.—*See No.* 81 *in the Table.*

Case of head presentation and unavoidable hemorrhage; placenta completely detached in the operation of turning; previous exhaustion; death.—The woman (a patient of Mr Tindal's of Glasgow) was at the end of her tenth pregnancy. The head of the child presented.

[1] Journal Ancien de Médecine, tom. xlv.

There was fearful hemorrhage before the placenta was expelled, but none after. Delivery was effected by turning a few minutes after the escape of the placenta. The mother died in half-an-hour. "In this case," Dr Smith observes, in the note which I have received along with it, "the patient was exhausted previous to turning, and that operation was adopted to have delivery effected before she died. The placenta was accidentally separated during the course of the operation, and Mr Tindal was perfectly certain that the hemorrhage ceased from that moment."—*See Case, No.* 62 *in the Table.*

In the three remaining cases of maternal deaths, the fatal occurrence took place during labour, or immediately subsequent to delivery. Of two of the three cases I have only very imperfect notes, which I give, such as they are, before offering any comment on them.

Case of "flooding, with one arm and part of the placenta slipped down below the os uteri internum;" turning; post-partum hemorrhage; death.—"October the 17th, 1731, about ten o'clock in the morning, Mr Giffard was sent for to the wife of a printer, near White Fryars; she had been seized," to use his own words, "about an hour before with a violent flooding, and when I came, I found she had lost a large quantity of blood; and I was told she was in about the seventh month of her reckoning. Upon touching, I found one arm of the child slipped out beyond the os internum, as also a large part of the placenta; wherefore, I gave it as my opinion, that she ought to be immediately delivered,—letting her husband and others know the great danger she was in. As it was entirely left to my conduct, I immediately passed up my hand, well greased, into the vagina, and so on by the side of the shoulder into the uterus, where I met with the remaining part of the placenta, wholly separated from the uterus. I now passed my hand between the placenta and the body of the child, and soon met with one foot, which I drew out beyond the labia pudendi, and then taking hold of it with a soft cloth, with a little difficulty, I brought out the hip and the body almost to the shoulders, when, finding it stopped at the head, I passed in my hand, and brought down one arm, the other not being slipped up again from its first falling down. I then endeavoured to draw out the head, but it would not readily follow; whereupon I passed up one finger into the child's mouth, and strove, by pressing upon the lower jaw, to bring the face forwards, whilst at the same time I pulled above at the shoulders; but as it was closely locked between the bones that form the lower part of the pelvis, I had no small trouble in bringing it out; however, at last, I finished the delivery by bringing away the placenta, which, being before loosened from every part of the uterus, readily followed. I was then in hopes we had surmounted our greatest diffi-

culties, and that the flooding would have stopped; but, to my great surprise, she continued still draining. I therefore again gently passed up my hand, believing that either some part of the placenta was torn off and left, or else that some coagulated blood kept the womb distended; but I could not meet with any part of the placenta, or any clots of blood. I then ordered cloths dipped in vinegar to be applied close to the parts, and what else I thought necessary, yet, notwithstanding all my endeavours to save her, *amisit cum sanguine vitam.*"—*See Table, No.* 137.

Case of unavoidable hemorrhage, with apparent hydrothorax and cardiac disease; death speedily after the expulsion of the placenta; living child subsequently extracted.—The case occurred to Dr Fraser of Aberdeen. It was the patient's sixth pregnancy. Labour came on at the eighth month. Very moderate hemorrhage had been going on for two hours, when the placenta became very extensively detached by one uterine contraction, and the mass of it was found lying in the vagina. "The accompanying hemorrhage," Dr Fraser states, "was great, and, without convulsions, she expired in two minutes." A few minutes afterwards, Dr Fraser passed his hand into the uterus, and extracted the child alive. "A *post-mortem* examination," Dr Fraser adds, "was not allowed, but from a combination of marked symptoms, I have a strong conviction that she laboured under hydrothorax, depending on a diseased state of the heart."—*See Case No.* 49 *in the Table.*

Case of fatal detachment of the placenta.—In speaking of the complete separation of the placenta in unavoidable hemorrhage, Dr Collins states, "Dr Clarke informed me, that he had met with one case of total separation; the patient was dying before he reached the house."[1] By a private note from Dr Collins, I am informed that he knows no more of the case than what is stated in the above sentence, and that in consequence of Dr Clarke's death, it is now impossible to obtain more details.—*See Case* 104 *in the Table.*

GENERAL REMARKS ON THE TEN FATAL CASES.

In all the first seven of the preceding fatal cases, the separation of the placenta, or the degree of hemorrhage after its detachment, had evidently little or no connection with the death of the mothers. In the first case, (Mr Hay's), the blood lost during the hour that elapsed between the expulsion of the placenta and birth of the child, is averred to have been "very little;" in the second case, (Walter's), not more than two ounces of blood escaped in all during the whole labour; in the third case, (Dr Merriman's), the hemorrhage after the expulsion of the

[1] Practical Treatise on Midwifery, p. 91.

placenta was, in all probability, inconsiderable, or altogether arrested, as it was not deemed necessary to expedite delivery, though the placenta was thrown off several hours before the infant was born; in the fourth case, the narrator (Mercier) distinctly attests, that the whole loss of blood was not greater than with an ordinary labour; in the fifth case, there was, to use Dr Ramsbotham's own expression, "no flooding" after the placenta was detached, and there had been none for some time previously; in the sixth case, (Mr Wood's), the hemorrhage completely ceased after the total separation of the placenta; and in the seventh case, (Mr Tindal's), the same fact was observed. In these two last cases, though both patients sunk principally from the effects of hemorrhage, yet in both of them that hemorrhage had occurred antecedently to the detachment of the placenta; the mischief, in so far as the flooding was concerned, was done before that detachment took place; in neither of them did the peculiarity of the complete separation of the placenta occur until the case was already so far hopeless, from the antecedent discharge, and, indeed, so far from being injurious, the separation of the placental mass would, on the very contrary, by its immediately arresting flooding, seem to have been salutary, though unfortunately in each too late to save.

On the other hand, there occurred, in the course of these seven fatal cases, circumstances and complications amply adequate to account for the deaths of the mothers, quite independently of the separation of the placenta, or of any flooding or other possible accident connected with that separation. In Mr Hay's case, the patient's death was evidently the result of the strong excitement and injuries to which she was subjected on the ninth day after delivery. Walter, as we have seen, attributes the attack of the disease, ("purpura alba," or miliary fever), of which his patient died, to her own indiscretion. In Dr Merriman's and Mercier's cases, puerperal fever and peritonitis were the causes of the fatal issue,—a disease that too often occurs independently of any morbid complication whatever, during labour. Mercier's patient had, though there was no accompanying flooding, become so exhausted, and the expulsive powers so inefficient, by the time he saw her, that instrumental delivery was deemed necessary. In Dr Ramsbotham's case, (an arm presentation) the child was delivered by evisceration of the chest and abdomen, an operation in itself sufficiently dangerous, and never employed except when turning even is impossible; and, in the present instance, it had its difficulties much enhanced by the rigid state of the os uteri. Lastly, in Mr Tindal's and Mr Wood's cases, extraction of the infants by version was had recourse to, at a time when the mothers were already greatly exhausted, and little able to withstand the additional shock of such an operation. Thus in two of the fatal cases, (Mr Hay's, and Dr Merriman's), the delivery was effected by the natural pains; and the cause of death in each was apparently independent of any

circumstances connected with the detachment of the placenta. In five of the cases, (Walter's, Mercier's, Dr Ramsbotham's, Mr Tindal's, and Mr Wood's), the delivery was accomplished by such operative means as are in themselves always more or less perilous to the life of the mother, particularly when, as in some of them, she had already become prostrated and exhausted by the time they were adopted.

For the above reasons we are, we believe, quite entitled to reject, in regard to the first seven fatal cases, the idea of the death of the mothers being caused by the total separation of the placenta, or by its mediate or immediate consequences.

If this be granted,—and we subtract on this ground the first seven fatal cases,—we have only, out of 141 deliveries, three maternal deaths left, which can be at all ascribable, directly or indirectly, to the complete detachment of the placenta, and its results. This would give a mortality of only one in about every forty-seven mothers from this complication during labour, in placental presentations; a proportion which, it must be confessed, is surprisingly small.

But it seems, indeed, even more than doubtful, whether all the three remaining fatal cases (Mr Giffard's, Dr Fraser's, and Dr Clarke's) should be allowed to have been instances in which the death of the mothers was attributable simply to complete separation of the placenta, and its effects.

Mr Giffard's patient died, if we may judge from his own account, of post-partum hemorrhage,—a complication which is known to be a special source of danger to the mother after placental presentations, under all modes of management.[1] The hemorrhage was here probably the result of the injury and laceration of the vascular and imperfectly dilated neck of the uterus, in consequence of the force employed in the operation of the extraction of the shoulders and head of the infant. This view would seem to be so far corroborated by the fact, that the post-partum discharge was not connected with the presence of any clots of blood in the uterus, and hence, was not the effect of atony of the body, or fundus of the organ. At all events, the fatal hemorrhage was not, in Mr Giffard's patient, in any apparent way, dependant upon the *previous* complete detachment of the placenta during the labour; and hence, we might probably be entitled to remove this case also, like the preceding seven, from the list of those in which the death of the mother could be attributed to the contingent separation and expulsion of the placenta.

In Dr Fraser's case, the chest affection may have had a princi-

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[1] See on this topic Dr Hamilton's Practical Observations, second edition, p. 329. In speaking of placenta prævia, he states, in reference to flooding from the ruptured vessels of the neck of the uterus, (the body and fundus of the organ being contracted) that for many years past he has been led to "dread this danger in every case where he has been obliged to force delivery in consequence of uterine hemorrhage."

pal share in the sudden demise of the patient,—the presence of heart disease (supposing such existed) predisposing, as is well known, the subjects of it to be greatly, and, in some instances, fatally affected by any rapid losses of blood, and occasionally leading, as I have known in two instances, to sudden death, from the shock of the delivery, when the labour was in other respects quite natural. I would add, that the details which I have obtained through Dr Fraser's kindness, are not by any means perfectly decisive, as to the whole placenta being completely detached in this instance. The same remark may apply to the other remaining case of Dr Clarke; if we may judge from the little information that we do possess in reference to it, and contrasting it with the results ascertained in other well observed instances. The account of Dr Clarke's patient is so brief and defective, as to furnish us with no data whatever as to the extent and nature of the accompanying hemorrhage, the existence or non-existence of any other complication, the delivery or not of the child, nor the immediate cause of the fatal event to the mother.

SUMMARY OF RESULTS.

Our inquiry, as far as we have hitherto proceeded, seems legitimately to admit of the following deductions.

1. The complete separation and expulsion of the placenta before the child, in cases of unavoidable hemorrhage, is not so rare an occurrence as accoucheurs appear generally to believe.

2. It is not by any means so serious and dangerous a complication as might *a priori* be supposed.

3. In nineteen out of twenty cases in which it has happened, the attendant hemorrhage has either been at once altogether arrested, or it has become so much diminished as not to be afterwards alarming.

4. The presence or absence of flooding after the complete separation of the placenta, does not seem in any degree to be regulated by the duration of time intervening between the detachment of the placenta and the birth of the child.

5. In ten out of one hundred and forty-one cases, or in one out of fourteen, the mother died after the complete expulsion or extraction of the placenta before the child.

6. In seven or eight out of these ten casualties, the death of the mother seemed to have no connection with the complete detachment of the placenta, or with results arising directly from it, and if we do admit the three remaining cases, (which are doubtful), as leading by this occurrence to a fatal termination, they would still only constitute a mortality from this complication, of three in one hundred and forty-one, or of about one in forty-seven cases.

7. On the other hand, under the present established rules of practice, one hundred and thirty-three mothers died in three hundred and ninety-nine placental presentations, or about one in three.

PART II.

SECTION VII.—MECHANISM BY WHICH HEMORRHAGE IS PREVENTED AFTER THE COMPLETE DETACHMENT OF THE PLACENTA; SOURCE OF THE DISCHARGE IN PARTIAL DETACHMENTS OF THE PLACENTA; MEANS BY WHICH THE HEMORRHAGE IS ARRESTED IN PLACENTAL PRESENTATIONS WHEN THE DETACHMENT IS PARTIAL—AND WHEN IT IS COMPLETE; ANALOGOUS CASES IN TWIN LABOURS; ANALOGOUS PHENOMENA IN THE THIRD STAGE OF COMMON LABOUR; MODES BY WHICH HEMORRHAGE IS PREVENTED, FROM THE VASCULAR ORIFICES LEFT EXPOSED ON THE INTERIOR OF THE UTERUS.

IN his *Outlines of Midwifery*, Professor A. Hamilton, after laying down the necessity of turning in placental presentations, observes, "In some instances, before the *orificium uteri* can be sufficiently opened to admit the hand of the operator to pass, the whole cake will actually be disengaged and protruded; but, (he adds) the separation and expulsion of the placenta previous to the birth of the child, is, for the most part, fatal to the mother.[1]

"If the placenta," says Petit, when speaking of unavoidable hemorrhage, "is entirely separated, the death of both the mother and child is certain."[2]

"When the placental mass is thus expelled before the child, the hemorrhage (observes Carus) must necessarily be so considerable, that both child and mother usually become a prey to death, (*eine beute des Todes.*")[3]

These three quotations express what seems to be the general opinion of medical men in regard to the complication which we are considering. I have already, however, taken occasion to show that the very reverse of the above statements is more consonant with fact and experience, and that the complete disjunction and expulsion of the placenta before the child, is an accident, neither very fatal to the mother, nor very frequently followed by any great or perilous degree of hemorrhage. Let us now inquire if we can explain the mechanism by which it happens, that generally, after the complete separation of the placenta from the uterus has occurred, not only does no considerable degree of hemorrhage supervene, but the preceding and sometimes violent discharge is at once arrested, and thus the life of the mother preserved against the impending danger

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[1] Outlines of Midwifery, p. 44. [2] Traite des Maladies des Femmes, &c., tom. ii. p. 22.
[3] Lehrbuch der Gynacologie, tom. ii. p. 442.

of frightful and fatal flooding. The investigation will, I believe, lead us to entertain more decided views, with regard to the propriety of the practice to which our present Essay points.

The explanation that would occur to most minds, on first thinking of the probable mode by which nature could arrest and prevent hemorrhage after the total separation of the placenta before the child, is that offered by Drs Ramsbotham and Campbell. "I think," says Dr Ramsbotham, "it may be satisfactorily explained how the woman's life is preserved. The head of the child is pushed down upon the os uteri, which suddenly gives way. Under its relaxation the placenta is loosed from its previous attachment, and falls down before the head, which now comes into immediate contact with the bleeding vessels, and by mechanical compression closes their mouths; from this moment, therefore, the loss of blood is suspended, and the head is afterwards expelled by uterine action."[1] Dr Ramsbotham here imagines that the head of the infant acts in such cases as a compress or plug upon the open uterine orifices left by the separation of the placenta, from the interior of the cervix.

"It may," remarks Dr Campbell, "be presumed that in these cases the fatal event must have been prevented by the quick descent, and consequent pressure of the body of the child, upon the point whence the placenta had been detached."[2]

That the above opinion[3] of Drs Ramsbotham and Campbell does not afford the correct explanation of the cessation of hemorrhage after the complete detachment of the placenta, appears to me to be evident from the following facts:—1st, That in some of those few instances in which the hemorrhage continued after the total separation of the placenta, the infant's head did present, but did not produce the result here attributed to it; (see for instance Mr Bailey's case, p. 30;) and, 2d, On the other hand, in a considerable number of the instances that we have collected, and in which the placenta was entirely detached and expelled before the child, the hemorrhage totally ceased, although the portion of the child that presented against the cervix uteri was not the head, nor indeed any such part as could produce the required degree of pressure upon the open uterine orifices.

In two of the instances which I have myself seen, and already detailed in a previous section, (see p. 11,) the shoulder and neck presented in one, and the arm of the child in another,—parts which could not be applied as plugs in the way supposed by Dr Ramsbotham and Dr Campbell.

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[1] Observations in Midwifery, part ii. p. 191, 192. [2] System of Midwifery, p. 369.

[3] Since the above was written, I find that Dr Radford of Manchester has published the same opinion regarding the suppression of the hemorrhage as Drs Ramsbotham and Campbell entertain. "On a complete separation of the placenta," (he remarks) "the hemorrhage is immediately and completely suppressed, provided the uterus is in a condition to so far contract, as to force down the head with the placenta upon the uterine openings."—*Provincial Medical and Surgical Journal*, for January 22, 1845.

In a considerable proportion of cases collated into our general table, the child presented preternaturally with the foot, feet, arm, or shoulder. These parts are all of such a form and size, that they could not be applied as compresses upon the part of the uterus which was exposed by the previous detachment of the placenta, and yet the hemorrhage appears to have been as *constantly* and as *completely* arrested in those instances when once the placenta was perfectly separated, as it was in cases in which the head or breech of the child came afterwards to press upon the cervix uteri. The following tabular view will demonstrate this important point, by showing the number of instances in which a lower or upper extremity came down after the expulsion of the placenta, and the degree of hemorrhage that was observed to follow in these cases.

Degree of Hemorrhage after separation of Placenta in	Footling Presentations.	Arm or Shoulder Presentations.	Total.
Great, ...	—	1[1]	1
Considerable, . .	1[2]	—	1
Slight, ...	—	2	2
Little or none, . .	2	8	10
Not stated, . . .	2	7	9
	5	18	23

These data prove, that "great" or "considerable" hemorrhage, after the expulsion or detachment of the placenta, is not more liable to occur when the retained fœtus afterwards presents by an upper or lower extremity, than when it comes down with the head or breech upon the exposed surface of the cervix uteri. The proportion of cases in which the hemorrhage continues is not greater under the one set of presentations than it is under the others, as may be seen by comparing the present table with that previously given at p. 27. And these observations seem to me to afford amply sufficient grounds for rejecting the idea, that the prevention of the hemorrhage after the complete separation of the placenta, is to be explained by the presenting part of the infant coming down, and acting as a compress upon the exposed orifices of the uterine vessels. It may be an auxiliary, but it is not a primary or essential cause of the suppression of the hemorrhage. For the mechanism of the arrestment of the flooding, in cases in which the placenta happens to be completely detached, and the child left in utero, is, I believe, of a totally different kind. But, in order to understand it, let me first premise, that obstetric pathologists are in all probability incorrect in the rationale which they currently give of the immediate source of sanguineous discharge in instances of flooding—whether accidental or unavoidable—from partial separation of the placenta.

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[1] See the details of this case already given and commented upon at pp. 30 and 31.

[2] "About a pound." See Case 43, or p. 31.

Anatomical Source of the Hemorrhage in Detachment of the Placenta.

From the time of Guillemeau downwards, accoucheurs seem to have generally believed, that in cases of unavoidable and accidental hemorrhage, arising from the greater or less separation of the placenta, the blood that is effused escapes from the vascular maternal orifices that are left uncovered and exposed upon the internal surface of the uterus, when the placenta is detached from that surface. Thus Guillemeau, in writing on the subject, states:—"The surest and most proper mode of assisting a woman when the after-birth presents at the passages, is to deliver immediately (*delivrer soudainement*). This is the more necessary, from there being usually a constant flow of blood, owing to the *mouths of the veins that are situated in the walls of the uterus* (those, namely, to which the placenta was united) *being open*, and as the uterus contracts in order to expel the infant, it squeezes out the blood that is contained in these vessels, and which is attracted to them by the heat and pain."[1]

Mauriceau entertained precisely similar views. "When flooding," he observes, "happens to a woman truly conceived, at whatsoever time it be, it proceeds likewise from the opening of the vessels of the fund of the womb, caused by some blow, slip, or other hurt, and chiefly because the secundine in such cases, and sometimes in others, is separated in part, if not totally, from the inside of the bottom of the womb, to which it ought to adhere, that it might receive the mother's blood appointed for the infant's nurture, by which separation it *leaves open all the orifices of the vessels where it was joined, and so follows a great flux of blood*, which never ceaseth (if so caused) till the woman be brought to bed: For the secundine being once loosened, although but part of it, never joins again to the womb to close those vessels, which can never shut till the womb hath voided all that it contained: For then, compressing and closing itself, and, as it were, entering within itself, (as it happens presently after delivery,) the orifices of the vessels are closed and stopt up by this contraction, whereby also this flooding ceaseth, which always continues as long as the womb is distended by the child, or any thing else it contains, for the reason aforesaid."[2]

In another part of his work Mauriceau again states: "But the coming first of the burden is yet much more dangerous; for, besides that the children are ordinarily still-born, if they be not assisted in the very instant, the mother likewise is often in very great peril of her life, because of her great floodings which usually happen when it is loosened from the womb before its due time, *because it leaves all the orifices of the vessels open to which it did cleave*, whence flows incessantly blood, until the child be born."[3]

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[1] Guillemeau, Les Ouvres de Chirurgie, p. 320.

[2] Mauriceau, Diseases of Women with Child and in Child-bed, p. 87 of Chamberlen's translation.

[3] Ibid., pp. 218, 219.

The opinions expressed in the above quotations from Guillemeau and Mauriceau, have been generally adopted by obstetrical authorities up to the present time. Thus, the writer of the last work published upon midwifery in Great Britain, (Dr Lee of London,) states,—when discussing the pathology of accidental and unavoidable hemorrhage,—"It is from the great semilunar, valvular-like, venous openings in the lining membrane of the uterus, which we have seen in various preparations, and from the arteries which are laid open by the separation of the placenta, that the blood *alone* flows in uterine hemorrhage."[1]

When the placenta is partially separated from the uterus, there are two surfaces left exposed by that separation, namely, a portion of the internal surface of the uterus, and a portion of the external surface of the placenta. According to the usual explanation, such as I have above shown it to be, the hemorrhage is supposed to proceed from the first of these exposed surfaces, namely, that of the uterus. On the contrary, I am assuredly of opinion, that it chiefly, and, in most instances, entirely, proceeds from the other surface, namely, that of the placenta. I feel quite convinced that the pathological opinion on this point advocated by the late Professor Hamilton is the correct explanation. After citing the opinions of Drs Ramsbotham, Davis, Dewees, and Ingleby, in reference to the origin of the hemorrhage from the exposed uterine surface in unavoidable and accidental floodings, Dr Hamilton observes: "Many other authorities may be quoted to prove the common opinion upon this subject; and yet the author, from the earliest period of his professional life, has been anxious to show, that the hemorrhage in those cases proceeds from the separated portion of the placenta, more than from the ruptured uterine vessels."[2]

To understand the true source of the flooding in unavoidable and accidental hemorrhage, the cause of its continuance when the separation of the placenta is partial, and the mechanism of its arrestment when that separation is complete, we must take into consideration the following different points:—*First*, The maternal portion of the placenta is of a cavernous structure; that is to say, it consists of a series of maternal vascular cells, or dilatations, or, perhaps more properly speaking, of one large maternal vascular bag, into which the blood of the mother is conveyed by the utero-placental arteries, and from which it is removed by the utero-placental veins. *Secondly*, The vascular maternal cells, or immensely dilated capillaries which contain the blood of the mother in the placenta, communicate so freely with each other throughout all the different portions of the organ, that the blood which has access into one part, may in this way be rapidly diffused into the other portions of the placental

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[1] Theory and Practice of Midwifery, (1844,) p. 361.
[2] Practical Observations, second edition, p. 312.

mass. And, *Thirdly*, The deciduous or uterine surface of the placenta has no vital, muscular, or contractile power by which it can constrict the orifices of the vascular tubes which pass from the uterus into it, when these tubes are ruptured in consequence of a greater or less detachment of the organ from the interior of the uterus.

Cause of the Continuance of the Hemorrhage, when the Detachment of the Placenta is partial. Explanation of its occasional cessations.

From the consideration of these premises it will readily appear, that when a small portion of the placenta is detached, it occasionally occurs, as I have already shown in the early part of the present Essay, that the consequent hemorrhage is sometimes so great, as to be dangerous, or even fatal, in its extent. Its amount, under this and other circumstances, may be also regulated and increased by the occurrence, (in consequence of uterine contraction,[1] or otherwise,) of any *laceration* in the detached portion of the placenta itself; for when the substance of the organ is torn, its vascular maternal cells will be more freely opened into and exposed, and a more profuse discharge be allowed to issue from them. We may further easily conceive, why the discharge should sometimes be actually more abundant when the detachment of the placenta is slight, than when it is greater in degree. For the quantity of blood passed into the maternal vascular structure of the organ, and consequently the quantity liable to escape from its unattached surface, will, in some respects, depend upon the extent of vascular placental connection which continues between it and the uterus. In other words, the intensity of the resulting hemorrhage will be regulated as much, or more, by the extent of placental surface which *still* remains in attachment to the mother, as by the extent of surface which is *already* detached; for the freedom with which the blood is supplied to the placenta will affect the violence of the flooding, equally, or more so, than the freedom with which that blood is allowed to escape from the open orifices of its ruptured vessels.

Probably in most cases the hemorrhage will reach its maximum when the quantity of blood which enters the placental cells by the adherent portion is equal to what can reach and escape from the open orifices of the separated portion. Any additional separation after this will tend rather to diminish the flooding, as less blood will be carried into the placenta, from the number of its channels of supply being diminished. Most accoucheurs seem to believe that the greater the degree of detachment, the greater will be the hemor-

[1] See illustrative cases in Smellie's Collection, vol. iii. p. 411, (the placenta "split in the middle;") and Ib., vol. ii. p. 217, ("the placenta adhered to the os internum, near its middle, or thickest part, in which part I perceived a *laceration* upwards of an inch long, and penetrating almost through the substance of the placenta.") In both these cases the mothers died of the excessive flooding before delivery, and the condition of the placenta was ascertained on *post-mortem* examination.

rhage, and hence, we are earnestly cautioned,[1] in the operation of turning in *placenta prævia*, not to separate more of the placenta from the cervix uteri than is absolutely necessary to permit of the passage of the hand. Theory as well as experience, would seem to throw the greatest doubts upon the soundness and propriety of this rule. If at all true up to a certain extent of separation, it certainly does not hold good in regard to the detachment when carried to some degree further.

There is an additional anatomical reason why the accompanying hemorrhage should be excessive, in some cases where a very small portion of the edge of the placenta only has been separated. I have already quoted from Dr Hamilton a case of this kind, which proved fatal, and where the "area of the separated placenta was less than a square inch."[2] The largest of the maternal vessels belonging to the placenta is that which Meckel, Jacquemier, and other authors, have described under the name of the circular sinus of the organ. It courses round the circumference of the placenta, in some parts being of a great size, and at other points more or less contracted, or even absent. I have usually found this maternal placental vessel of great dimensions in several different parts of its course. In the cases in which excessive hemorrhages occur, when a small portion only of the edge of the organ is detached, I believe the danger and fatality of the result are to be ascribed to the fact, that some portion of the course of this large circular sinus has been opened, and thus a rapid and free tide of maternal blood allowed to escape from the disrupted part of this uncontracting tube.

In all instances, then, of hemorrhage from partial separation of the placenta, I hold that the blood issues principally, if not entirely, from the uncontracted and uncontractible maternal orifices, that belong to the external surface of the separated portion of the organ, and that the maternal blood is supplied more or less freely to these orifices, in consequence of the free communication existing among the different maternal cells, and from these cells being kept filled with blood through the utero-placental vessels of that portion of the placental mass which continues to remain fixed and attached to the uterus.

Further investigations will probably show, that the greatest quantity of blood that escapes, flows from the exposed orifices which lie nearest to, or are actually involved in, the line of separation between the placenta and uterus. Along this line of separation, and in its immediate neighbourhood, these orifices—consisting mainly of apertures in the large and torn *decidual* veins—will be for

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[1] As by *Rigby*, (System of Midwifery, p. 262, "The less we separate the placenta, the less will be the hemorrhage;")—*Ramsbotham*, (Obstetric Medicine p. 393, "The profuseness of the discharge will be principally regulated by the degree of separation." (See also *Levret* (Accouchemens Laborieux, p. 68;) *Hatin*, (Cours d'Accouchements, p. 178, *Lachapelle* (Pratique des Accouchemens, tom. ii. p. 440,) &c. &c.

[2] Practical Observations in Midwifery, 2d edition, p. 314.

a time kept more stretched and patulous than in the other portions of the detached surface, and more especially will this hold true if there exist any tendency in the uterus to detach itself more and more from the placental surface along this line of junction by constant contractions. Under such circumstances the placental orifices alluded to, and those in their immediate vicinity, will afford, not only the freest, but also the nearest channel for the discharge of the mother's blood flowing into its maternal cells.

In cases of partial detachment of the placenta from the interior of the uterus, the attendant degree of hemorrhage is also, no doubt, regulated by another important circumstance,—namely, by the condition of the blood itself in the separated portion of the organ. If the blood in the maternal cells of that portion continues still to remain fluid, it will be ready to escape from every ruptured orifice upon the detached placental surface. Hence, when a considerable portion of the placenta is at once and suddenly separated, the discharge is sometimes excessive, until the blood in the tissue of the detached part becomes more or less coagulated. Gradually by its coagulation and infiltration into the structure of the separated portion of the organ, it obstructs the maternal cells of that part, and consequently more or less completely arrests the discharge.

It is in fact to this infiltration and coagulation of blood in the detached portion of the organ, that we are, as Gendrin[1] has well shown, to look for an explanation of the occasional temporary cessations of those floodings which are so frequently observed during the latter periods of utero-gestation, in cases of *placenta prævia*. It is well known, that when the placenta presents, hemorrhage is liable to occur at intervals, for days and weeks, or even for months previously to the completion of the full term of pregnancy. Each of these hemorrhages depends upon a partial detachment of the expanding surface of the *cervix uteri* from the unexpanding surface of the placenta. For the expansion of the cervix uteri, during the last periods of pregnancy, is known to produce its detachment from the placenta, when the placenta is implanted upon it, exactly in the same way as the contractions, or rather retractions, of the same part during labour, lead to a similar result.

Each partial detachment occurring during pregnancy gives rise to the exposure of a greater or less number of vascular placental orifices, and consequently to a greater or less degree of hemorrhage from these orifices. Each of these hemorrhages generally ceases after a time, and the mechanism of their cessation is not so much to be found in any changes in the corresponding part of the uterus, as in the changes I have adverted to as occurring in the separated portion of the placenta. The blood becomes infiltrated and coagulated in the substance, and occasionally also upon the surface, of this separated portion; its vascular maternal cells are thus render-

[1] Medecine Pratique, tom. ii. p. 216.

ed impermeable; and the temporary arrestment of the flooding is consequently effected. The blood diffused and infiltrated into and upon the detached portion of the placental structure, undergoes a series of changes which I have elsewhere attempted to trace minutely;[1] and, after a time, the separated and ecchymosed tissue of the placenta itself becomes yellowish and atrophied, partly from the alterations which occur in the blood infiltrated through it, and partly from the obliteration of its vessels, and the consequent degeneration and desiccation of its tissues. In cases of *placenta prævia*, in which there has been a repeated recurrence of hemorrhage, and as frequent an arrest of it, we can occasionally trace in the placenta, after its expulsion, different parts of it, showing a series and gradation of pathological changes arising from successive partial detachments, and successive apoplectic infiltrations and obliterations of its substance from coagulated blood of different ages lodged in its structures. These alterations are confined to the detached portion, and the part always presenting the most recent stage of the pathological changes in question is that lying nearest the line of junction, between the separated and affixed division of the organ. The part showing the most advanced stage of the changes will be found situated furthest from this point; or is, in other terms, the part which was first and earliest detached. In cases of direct and central implantation of the placenta over the os, the centre of the organ having in general become first detached, will be found to present the oldest morbid alterations; and the newer forms and phases of it may be sometimes traced in successive departments or layers, from this to the circumference of the detached portion,—always supposing there has previously occurred a succession of detachments and attacks of hemorrhage. If the edge only of the placenta has presented—and several successive hemorrhages have in the same way taken place previously to labour—the same series of morbid changes will be found in the organ running, not, as in the above instance, from the centre towards the circumference, but from the presenting or earliest separated point of the edge, more or less towards the centre of the mass.

As affording some proof of the correctness of the view which I have already ventured to give of the immediate source of the discharge in unavoidable hemorrhage, I would beg to dwell for a moment on one other point:—Almost all obstetric authors mention, as a mark of diagnosis during labour, between unavoidable and accidental hemorrhages, that in the first or unavoidable species, the flooding is greatest during the pains, and least during the intervals; whilst, in the last, or accidental form, the discharge is least during the pains, and greatest during the intervals. In placental presentations, "the character of the hemorrhage (says Dr Rigby, p. 255, *System of Midwifery*) is also different from that of common hemor-

[1] See Pathological Observations on the Diseases of the Placenta in the Edinburgh Medical and Surgical Journal, vol. xlv. p. 275.

rhage, inasmuch as it increases during a pain, and diminishes or ceases during the intervals, whereas in hemorrhage under ordinary circumstances it is the reverse." I am not aware that any solution has been hitherto attempted of this peculiarity in unavoidable hemorrhage. And, whilst it seems very inexplicable upon the idea generally received that the discharge comes from the exposed surface of the uterus, it is a condition which we might have *à priori* anticipated from the opposite opinion, that the effusion flows from the detached surface of the placenta. For, if in *placenta prævia* the hemorrhage proceeded from the vascular orifices laid open on the interior of the uterus, it ought to be diminished and not increased in quantity during the pains, as these orifices will necessarily be temporarily diminished under the contraction of the uterine fibres. If we adopt, however, the other view, that the discharge proceeds from the open vascular orifices existing on the outer or maternal surface of the detached portion of placenta, we can easily understand how its amount should be temporarily augmented by each labour pain. For each uterine contraction, in pushing down the presenting part of the child against the compressible placental mass, will squeeze out from its maternal cells, as from a sponge, a portion of the fluid blood contained in them; and hence, during the pressure, an increased flow of this blood will issue from the vascular orifices opening upon its detached surface. During the intervals between the pains, a re-accumulation of maternal blood will take place in the interior of the placenta; but the quantity actually escaping will be comparatively less, till again it is forced out in accumulated amount by the compression to which it is subjected by a returning pain.

Cause of the Cessation of the Hemorrhage when the detachment of the Placenta is complete.

All the preceding remarks apply to the mechanism of unavoidable hemorrhage, and its arrestment, when the placenta is partially separated. Their application to the rationale of the complete arrestment of the hemorrhage, in those instances in which the placenta is *completely* detached, is still more obvious and simple. For, if the explanation which I have above given of the source of the hemorrhage in partial detachment of the placenta be true,—namely, that it proceeds principally, if not entirely, from the maternal vascular cells belonging to the separated portion of the organ being still more or less freely supplied through the utero-placental vessels of the adhering portion,—we can further easily understand how it occurs, that the attendant hemorrhage is immediately moderated, or entirely arrested, when the placenta is once thoroughly and perfectly separated from the interior of the uterus, as in the class of cases which form the subject of the present memoir. If the flooding proceeds, as I have endeavoured to show, from the detached and exposed surface of the placenta, and not from the detached and ex-

posed surface of the uterus, the placenta must cease to yield any new or additional quantity of maternal blood, as soon as its own vascular connections with the mother are destroyed; or, in other words, the immediate source of supply of the hemorrhage is cut off, and its continuance consequently prevented, as soon as the placenta is entirely separated from the interior of the uterus.

Besides the preceding *anatomical* considerations, we must take some important *physiological* points into consideration, in investigating the mechanism of the complete cessation of unavoidable hemorrhage upon the complete separation of the placenta. The uterus, during pregnancy, has, like other organs under high vital periodic activity, both its arteries and veins, but especially the latter, enormously enlarged. The immediate and final object of this great enlargement, is to supply the necessary materials for nourishment and respiration to the included fœtus. The medium through which these materials are supplied to the fœtus is the placenta; and the maternal cells of that organ form the more immediate locality in which they are transmitted from the maternal to the fœtal system. We have already stated, that these maternal placental cells are merely dilated capillaries, inasmuch as they constitute the only vascular connection between the terminations of the utero-placental arteries and the origins of the utero-placental veins. The capillaries, especially of those parts and organs which are liable to periodic excesses of action, are allowed to have a power of producing, under these excesses of action, an increased determination of blood to themselves and their corresponding arteries and veins, and that quite independently of any change whatever in the central organ of the circulation.[1] This seems to hold true to a great and remarkable degree with regard to the maternal form of capillary circulation carried on in the placenta, in consequence of the great and remarkable functions which this temporary portion of capillary circulation is destined to perform. And if the organic relations of the placenta to the uterus are disturbed, the resulting deviations are equally striking. If the placenta is only partially detached, the "attractive" power of the maternal circulation in the organ is, with the other moving powers of the blood, generally sufficient, to keep the cells of the detached, as well as those of the adherent portion, filled with blood; and at the same time the circulation in the uterine arteries and veins in the immediate neighbourhood continues to be more or less vigorously maintained in consequence of their contiguity to the free tide of communication that is carried on between the uterine vessels and the part of the placenta that still remains affixed. Hence, probably, even the orifices of the congested and enlarged uterine veins opening on the interior of the uterus, and lying

[1] "The capillaries possess a distributive power over the blood, so as at least to regulate the local circulation, independently of the central organ, in obedience to the *necessities* of each part."—See note in Mr Palmer's admirable edition of the "Works of John Hunter," vol. iii. p. 332.

near the existing line of junction between the uterus and placenta, may occasionally allow of some discharge, in addition to the freer form of flooding that we have seen to take place from the more patulous apertures left on the exposed surface of the placenta itself. But separate entirely and completely the placenta from the uterus, and then you at once alter the course—as you have at once removed the great physiological aim and object—of the utero-placental circulation. The blood in the uterine vessels being now no longer attracted by the maternal capillary system of the placenta, and so far the *distributive* influence of that system being completely and suddenly abrogated, there is not only a less absolute tide of blood determined towards the uterus, but that which is contained in its vessels seeks the freest and most patent course backward to the heart through the higher and larger communicating branches between the uterine arteries and veins. The placental capillary influence no longer *turns aside* from these channels the direct and onward course of the circulating current into its own set of special uterine vessels. These special vessels, now that their function is arrested, are comparatively empty of blood, and their collapsing or collapsed sides may serve to keep the general vascular current in its proper canals; for the hemorrhage, if any, is from venous orifices, and hence easily repressed by slight impediments; and we shall afterwards see that it is not a direct discharge, but arises from retrogression or regurgitation of the blood in the venous tubes.

I might add, if it were necessary, some analogous instances in illustration of these opinions. The case of a limb suddenly and completely avulsed by machinery, or otherwise, might be shown to be similar in most points. Every one knows how slight the hemorrhage generally is, which is met with in connection with this severe accident. But another illustration may be regarded as more apposite. The fœtus has a circulation of blood to and from the placenta through its umbilical vessels, in the same way as the mother has a circulation to and from the placenta through its utero-placental vessels. We have found as a general law, that when the utero-placental vessels are entirely and totally divided by the complete detachment of the placenta, the mother has little or no tendency to lose blood from their exposed extremities. When the umbilical vessels are divided, the fœtus has as little tendency to lose blood from their divided extremities, if once the vicarious *function* of the pulmonary respiration is freely established.[1] In the one instance as

[1] In reference to this point it may be necessary to state two facts. *First*, It is generally acknowledged by physiologists, as the result of various observations, that immediately after the child is born, the umbilical vessels cease to pulsate and carry blood, if the pulmonary respiration becomes active; and if the pulmonary respiration is by any cause interrupted or arrested before the cord is divided, the circulation through the umbilical vessels again becomes more or less active. *Secondly*, There seems to be very little danger of hemorrhage from the umbilical vessels after the division of the cord, if previously to that division the pulmonary respiration be allowed to become completely established. Hence various practitioners have gone so far as to aver, that it is unnecessary,

in the other, the circulation through the divided vessels is stopped, and their tendency to bleed is arrested as soon as the *physiological* conditions which called these vessels into existence and action, is completely arrested or superseded, and that though some *anatomical* conditions of its vessels, apparently favourable to hemorrhage—particularly the presence of a large venous tube or tubes unprovided with valves, and admitting of regurgitation—may be still found persisting.

Absence of Hemorrhage in Twin Labours, with one or both Placentæ entirely detached before the birth of the Second Child.

There is another series of cases which, if my present space permitted, might be adduced at length, both in corroboration of the fact, that the complete separation of the placenta is not followed by hemorrhage, and in evidence of the special explanation of the cessation of the flooding which I have above offered. I here advert to cases of twins, in which it occasionally occurs, that, after the birth of the first child, and before the birth of the second, one or both of the remaining placentæ are expelled, and yet no hemorrhage follows. Such cases may be arranged under three divisions,—namely:—

1. *Twins, in which, after the birth of the first child, its own placenta is expelled or removed, the other infant and placenta remaining without flooding, for a greater or less length of time in utero.*—"When a woman (says Mauriceau) has a plurality of children, we must not deliver the placenta till after the birth of the last infant; because there would be produced a great discharge of blood (*une grande perte de sang*) if we thus detached the placenta prematurely."[1] Dr Denman adverts to this subject in language implying similar theoretical doubts upon the point, and yet, at the same time, affording practical confutation of it. "When (he remarks, in his observations upon twins) the placentæ are separate, that of the first child

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as a general rule, to place a ligature upon the fœtal extremity of the cut umbilical cord, the tendency to bleed directly through its arteries, or indirectly by regurgitation through its vein, being so slight as not to require it, if the cord be not cut till the child has cried loudly, and the lungs are in full and free action. See, in support of this opinion and practice, *Dehmel* in Haller's Dissertationes Anatomicæ, tom. v. p. 607; *Kaltschmid* De intermissa Funiculi Umbilicalis Deligatione non absolute lethali. Jena, 1751; *Schweikhard*, De non necessaria Funiculi Umbilicalis Deligatione, Argent. 1769; *Carboue*, Journal General de Medecine, tom. iii. p. 334; *Van der Eem*, De Artis Obstetriciæ Hodiernorum prae Veterum Præstantia, in Schlegel's Sylloge Operum Minorum in Arte Obstetrica, tom. i. p. 94; *Ziermann*, Die naturgemasse Geburt des Menschen, &c., Berlin, 1817. *C. Martin*, in a Thesis published some years ago at Munich, "De Ligatura Funiculi Umbilicalis," maintains that the practice of tying the fœtal extremity of the cord is not only useless, but hurtful, and denounces its adoption as a reprehensible crime propagated down to our times, *(facinus damnandum, ad nostra usque tempora propagatum,)* p. 11. "Whatever," observes Velpeau, "may be the explanation, it always happens, that if it is left to itself and without ligature, the cord would very rarely expose the fœtus to any hemorrhage, or to any accident, even if it were clean cut, and not bruised or torn." *(Traite des Accouchemens*, tom. ii. p. 566.)

[1] Aphorismes touchant la Gossesse, &c., No. 214.

should not be extracted before the birth of the second child, as a discharge of blood must *necessarily* follow, and perhaps a hemorrhage; though sometimes one placenta has been discharged before the birth of the second child, without any material loss of blood. In some cases of hemorrhage, when there was only one child, the placenta has been expelled before the child, without any detriment, though not without much apprehension of danger."[1] "I have seen (Dr Collins observes) several instances where the placenta of the first child came away without interference before the birth of the second, and yet there was no hemorrhage of any consequence."[2] Several cases of a similar kind have been reported to me by different professional friends.[3] They all tend to give a direct contradiction to the observation of Caseaux,—the author of one of the latest and best French works on Midwifery,—that the complete detachment of the after-birth of the first child "would expose the woman to a fatal hemorrhage, (*exposerait la femme à une hémorrhagie mortelle.*"[4]) In his work, *Pratique des Accouchemens*, Peu even ventured to suggest it as a proper mode of practice in some cases, to remove the first placenta, when ascertained to be quite isolated, before the birth of the second child. "When there is," he observes, "more than one child, the method ordinarily followed is to receive the one that presents first, the cord of which should serve as a guide for the others. The fingers are slipped along it to the mass of the placenta, to discover if it is absolutely separated from the other placentæ. In this case, which is sufficiently rare, one may draw it out immediately."[5]

It may be objected to these twin cases, as corroborative of the fact for which I adduce them, that the distended bag of the membranes of the remaining child might prevent any hemorrhage by acting as a sufficient compress upon the whole uterine surface laid bare by the detachment of the placenta of the infant already expelled. But this objection will not hold good with respect to twin cases included under the two divisions which I have next to speak of.

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[1] Introduction to the Practice of Midwifery, p. 541.

[2] Practical Treatise on Midwifery, p. 312. He adverts to two hospital cases. The two following similar cases occurred to him in private:—

1. "C. S. was delivered of twins, June 21, 1823. The placenta of the first child was expelled immediately. The feet of the second were then found in the vagina, and brought down. *There was not the slightest hemorrhage.* The first was born alive, the second putrid."

2. "M. C. was delivered of twins, May 6, 1823. The placenta of the first child was expelled before the birth of the second, *without hemorrhage.* Both children were born alive at the full period." See Ib. p. 312, 313.

[3] Thus, "I have seen (Dr Dawson of Newcastle writes me) two cases of twins, where the placenta of the first came away before the birth of the second child. There was *no hemorrhage* in either case. Mr Sang (Dr Dawson adds) has met with two cases of this description, and also *without hemorrhage.*" A case of the same kind, and with the same result, occurred some time ago to Dr Dickson, one of my own pupils. Dr Fenton, Dr Campbell, and others, have related to me similar instances.

[4] Traité de l'Art des Accouchemens. Paris 1841. P. 785.

[5] Op. Cit., p. 208.

2. *Twins, in which after the birth of the first infant, the placenta of the second child was expelled, one infant and placenta remaining still in utero.*—A case of this kind has been related to me by my friend, Dr Andrews, Lecturer on Midwifery at the Westminster School. One of his pupils was in attendance. A placenta was expelled after the birth of the first child. Little or no hemorrhage occurred till the second infant was born, some time afterwards. It was found that the previously expelled placenta belonged to it, and the still retained placenta belonged to the child that had been first born. Here, in a case of twins, we had a child and a placenta remaining in utero, but the remaining placenta was not the placenta of that child. And the placenta which was previously detached and separated had necessarily torn asunder the bag of membranes, leaving the portion of uterine surface to which it was itself affixed exposed, without that exposure leading to any marked degree of hemorrhage.

3. *Twins in which between the birth of the first and second child, the placentæ belonging to both were expelled.*—Dr Dewar of Dunfermline has reported to me two cases of this kind. In one "the placentæ were firmly united, and were discharged after the birth of the first child. There was *no* unnatural discharge of blood. The mother did well." This case occurred in the practice of Dr Brown. The other occurred under Dr Dewar's own observation. "The mother had born several children. The first child (which was at the full time) presented by the feet, and immediately after its birth the two placentæ, connected by a membranous but not vascular band, were expelled. Labour followed briskly, and in little more than five minutes the second child, which presented naturally, was born. *The hæmorrhage* (Dr Dewar adds) *was very slight*, and not greater than what occurs after some ordinary labours. The mother did well."

It may be considered that, in these two cases, the interval between the expulsion of the placenta and the birth of the child was too brief to allow accurate observations to be made upon the degree of existing hemorrhage. This objection is completely answered by a third case of the same kind mentioned to me by my friend Dr Protheroe Smith of London. "I was," he writes to me, "called to a patient some time since who had given birth to one child, immediately after which a large double placenta followed *without hæmorrhage*, leaving a second child in utero, which was expelled, dead of course, *three or four hours afterwards, without further discharge of blood.*" Dr Tyler published, two years ago, a similar case.[1] After the birth of the first child, a double placenta was discharged. Two hours afterwards, the shoulder of the second child was found presenting, and the uterus in a state of "hour-glass contraction."

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[1] American Journal of the Medical Sciences for October 1843: or, Provincial Medical Journal, vol. vii. p. 245.

Many unsuccessful efforts to turn the fœtus were made. At last its thorax was eviscerated, and the breech brought down. The mother made a good recovery. "Here," observes Dr Tyler, "we have a case not merely of simple placenta prævia, but a double surface exposed,—there having been two placentæ; the fibres of the womb first in a state of rigid contraction; then the irritation consequent upon the performance of the embryotomy; and, lastly, a state of excessive relaxation, *and still not a drop of hemorrhage*, and the female entirely recovered."

Presence of Hemorrhage in Partial, and its absence in Complete Detachment of the Placenta in the Third or Last Stage of Ordinary Labour.

I have now referred, under the present section, to two separate sets of facts, illustrative of the non-supervention of hemorrhage after the complete detachment of the placenta from the interior of the distended uterus. We have seen that both in the placental presentations and in twin labours, a large portion of the internal surface of the uterus may be left exposed by the entire separation of the placenta, while the organ continues distended by the presence of a remaining child, and yet the vessels of that exposed surface have little or no tendency to bleed, if the placental mass be only once completely detached from it. We have further seen, that if, in the same cases, the placenta be only partially separated from its uterine attachment, hemorrhage is generally present. The supervention of the hemorrhage, when the detachment of the placenta is partial, is probably not more certain than its cessation is, when that detachment is perfect and complete.

Though these facts have escaped the general notice of obstetric pathologists, they have all been long familiar with a *third* set of instances in which the same phenomena may be observed. I refer to circumstances well known in connection with the last or third[1] stage of common labour, and after the child is born. When during that period of the labour, the placenta happens to become only partially separated from the uterus,—as in cases where a portion of it still remains firmly attached from morbid adhesion,—hemorrhage is generally present. When, on the other hand, the placenta becomes totally separated from the interior of the uterus, either naturally or artificially, all hemorrhage generally ceases. In other words, we have the same consequences resulting from partial, as contrasted with complete detachment of the placenta, in the last stage of labour, and when the uterus is comparatively small and contracted, as we observe under the same conditions in the earlier stages of parturition, and when the uterine cavity is still

[1] In correspondence with the language of Denman, Hamilton, Ramsbotham, &c., I here use the word "third stage," as denoting the period intervening between the birth of the child and the expulsion of the placenta.

filled and distended by the presence of an infant. Under these at first apparently different circumstances, the general fact seems to be the same, namely, hemorrhage is almost sure to occur if the placenta be only partially separated; it is almost as sure to cease if the placenta be once fully and entirely detached.

Means by which Hemorrhage is prevented from the Venous Orifices left exposed on the Interior of the Uterus.

I have no intention, at present, to push the present investigation further, and enter into a full inquiry into this *other* remaining point, namely,—by what special mechanism nature prevents the occurrence of hemorrhage from those patulous vascular orifices that are left on the interior of the uterus when the placenta is, as in the instances we are considering, completely detached from its internal surface. The simple empirical fact of its non-occurrence, is sufficient for *all the practical purposes* of the present essay. And I believe that the subject, if fully discussed, would form an anatomical and pathological problem that would require for its complete soultion a much more laborious and lengthened series of researches than I can pretend at this time to afford to it. I have, however, little doubt, but that the means by which in placental presentations, hemorrhage is prevented from the uterine vessels themselves after the detachment of the placenta, will be found in all its essential points, to be the same by which flooding is prevented after the removal of the placenta in the ultimate stage of common labours. The non-occurrence of hemorrhage from the uterine vessels in this last state, or after the complete detachment of the placenta in ordinary parturition, is probably not explicable, as is generally imagined, upon the sole circumstance of the simple and absolute contraction that occurs in the uterine fibres after delivery. We know, from the observations of Gooch,[1] Velpeau,[2] Rigby,[3] and others, that post-partum hemorrhage sometimes supervenes when the uterus appears contracted and reduced to its usual size after delivery. On the other hand, the facts that I have adduced in the preceding pages show, that there is little or no tendency to hemorrhage after the perfect expulsion of the placenta, when this simple

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[1] Medico-Chirurgical Transactions, vol. xii. p. 157. "The observing practitioner must," Dr Gooch observes, "have been frequently struck by the little proportion that existed between the want of contraction and the degree of hemorrhage; having found the uterus bulky without any hemorrhage, and a profuse hemorrhage without greater bulk of uterus. Nay, further, I have witnessed a profuse hemorrhage, though the uterus had contracted in the degree which commonly indicates security; and I have ventured to do what is seldom justifiable, separate the placenta before the uterus had contracted, without more hemorrhage than after a common labour. What is this circumstance that has so great an influence that its presence can cause a moderately contracted uterus to bleed profusely, and its absence can cause an uncontracted uterus to bleed scarcely at all?"—P. 152.

[2] Traité de l'Art des Accouchemens, tom. ii., p. 539.

[3] London Medical Gazette, vol. xiv. p. 332, and System of Midwifery, p. 218.

and absolute contraction of the uterine fibres is so far prevented by the presence *in utero* of a full-grown fœtus. When the child is born in ordinary labour, and the placenta happens to be retained from *want* of uterine contraction, hemorrhage does not necessarily supervene. It is well known that Ruysch, Wm. Hunter, and others, adopted, for a time, the practice of leaving the placenta in utero for hours and days till nature herself threw it off, and that they were at last forced to abandon this line of treatment,—not because uterine hemorrhage was liable to supervene, but because the dead and retained organ was found to become putrid, and to give rise to symptoms of severe irritation and fever. Again, after the complete evacuation of the uterus in common parturition, and the total removal of the placenta, hemorrhage does not necessarily supervene, though the uterine fibres are not in a state of firm contraction. We often find them alternately relaxing and contracting when after-pains supervene, and yet the general relaxation that is observable between the pains may not give rise to the slightest degree of flooding. Every practitioner has had occasion to watch with more or less anxiety, the uterus remaining of considerable size and softness for some time after delivery, and consequently with its fibres not firmly contracted, but without after-pains, and without hemorrhage supervening. In the same way I shall afterwards have occasion to show that in some cases of placental presentation after the placenta had become expelled, and while the child remained in utero, the labour-pains have ceased; and still notwithstanding this cessation, not only has no hemorrhage followed, but on the contrary the flooding that previously existed has immediately ceased.

Such instances prove that strong uterine contractions in the special complication which forms the subject of our observations are not probably so essential a part in the mechanism of the prevention of hemorrhage from the open orifices of the uterine veins as we might *a priori* suppose. When hemorrhage does continue after the expulsion or extraction of the placenta in placental presentations, the determining cause of the hemorrhage is probably the same as gives rise to this accident in the last stage of labour, and after the complete evacuation of the uterus. In two cases which have been already quoted at length, and where, in placental presentations, the hemorrhage remained after the complete expulsion of the placenta, (the child being retained in utero,) the flooding still continued also for a time after the infant was extracted, and the uterus was completely emptied. The same circumstances,—whatever they may be,—in all likelihood led to its recurrence under both of these conditions.

No doubt the occurrence, after delivery, of great and decided atony, in the whole muscular system of the uterus, does assuredly give rise to post-partum hemorrhage; and the same antecedent condition may be the cause of the continuation of the flooding in some circumstances where this happens after the expulsion of the placenta in

placenta prævia. But if I may judge from my own observations, I would venture to remark, that the morbid condition which is most frequently and earliest seen in connection with post-partum hemorrhage, is a state of irregularity, and want of equability in the contractile action of different parts of the uterus,—and, it may be, in different planes of the uterine fibres,—as marked by one or more points in the organ feeling hard and contracted, at the same time that other portions of the parietes are soft and relaxed,—and by the contracting and relaxing fibres slowly but frequently changing their relative situations.[1]

Upon the same principle, I believe that in attempting to prevent or remove the morbid condition leading to post-partum hemorrhage, when it is functional in its nature, and not connected with any organic or traumatic causes, we ought to endeavour to produce not merely a certain degree and amount of uterine contraction, (the great and primary practical point to which we always justly look), but also a certain equability and uniformity of contraction. The same may perhaps, be found true, both pathologically and practically in regard to the state of the uterus, after expulsion or extraction of the placenta before the child in placental presentations. At the same time I would repeat, that this part of the subject, like the whole question, of the manner and means by which hemorrhage is prevented from the exposed uterine veins, after every case of ordinary labour, stands, in my opinion, in need of new, careful, and extended investigations. I have, however, at present, no desire to encounter so wide and complicated an inquiry; and shall content myself with stating in reference to the subject, the few following suggestions.

First. Uterine hemorrhage after the separation of the placenta in any of the stages of labour, is *not Arterial* in its character. The utero-placental arteries are numerous, but so long and slender[2] as to become readily closed; 1, By the tonicity of their coats; 2, By contraction of the uterine fibres upon the course of these vessels themselves as they pass through and amid the uterine structure; and, 3, and principally by the changes in their tissues produced by the mechanical rupture of their coats,—torn arteries being little if at all liable to bleed,—and the placenta being separated by a true process of avulsion.

Secondly. Hemorrhage, therefore, under the conditions supposed, is *Venous* in its source and nature. Further, it is specially important to mark that it is a *venous hemorrhage by retrogression*. The *forward* course of the uterine and utero-placental venous circulation, is from the dilated maternal capillaries or cells of the placenta to-

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[1] "I have rarely introduced the hand into the uterus in a case of flooding without meeting with it, [hour-glass or irregular contraction] whether the placenta had or had not been expelled."—*Dr Burns' Principles of Midwifery*, 9th Edit. p. 543.

[2] I speak of these utero-placental arteries as they are seen in the beautiful injected preparations of them left by William Hunter and the second Munro, and as I have myself observed them in recent specimens.

wards the periphery of the uterus, and the ovarian and hypogastric venous trunks. In uterine hemorrhage, the blood that escapes, instead of flowing onwards, regurgitates *backward* into the uterine cavity.

Thirdly. The mechanism by which, after the separation of the placenta, this retrograde course of the venous circulation towards the cavity of the uterus, so as to lead to hemorrhage, is *prevented* is probably of a compound character, or is effected by different means. Each of these means may be more or less efficient under different circumstances and at different times.

Fourthly. The most powerful of these preventive measures consists in the uniform and regular contraction of the uterine fibres. By this contraction the canals of the supplying arteries are constricted, and the venous tubes or sinuses which more immediately yield the discharge, are directly compressed. The facility of this compression of the sides of the veins and the consequent diminution of their cavities, is promoted by the naturally thin, flattened form of their canals, and by the fact that the proper contractile tissue of the uterus forms their second coat,—the uterine veins consisting of the usual lining membrane of the venous system placed in direct contact with the muscular tissue of the uterus. At the same time it is to be recollected, that there seems to be often no direct relation between the degree of uterine contraction and the degree of tendency to hemorrhage, for, as we have already seen,—1. No hemorrhage may occasionally be observed after delivery, though the uterus is not contracted to its usual degree;—and, 2. It may be present when the uterus is apparently well contracted. But, 3, There are, according to most anatomists, few or no *contracting* fibres in the structure of the os and cervix uteri, and certainly after delivery, I have generally, if not always, found it remaining open, gaping, soft, and flaccid, even when the proper cavity of the uterus above felt shut and contracted, and its parietes hard and firm. Still when the placenta is attached to the surface of this uncontracting portion of the uterus, hemorrhage is not common after its separation, unless some laceration of its vessels has occurred. Here we have post-partum hemorrhage prevented, *without* the contractile mechanism, generally considered necessary for its avoidance, being almost in existence. And lastly, in cases of spontaneous or artificial extraction of the placenta in some placental presentations, and twin labours, the placental mass may be completely separated, and the uterus still remain distended by the presence of a child in its cavity so as to prevent much contraction of its fibres, without hemorrhage occurring. The venous trunks running to the uterus are not supplied with valves, and under the above and other circumstances, by what means in addition to, or in substitution of, the contraction of the uterine fibres, does nature prevent the retrograde flow of venous blood into the uterine cavity,—or, in other words, uterine hemorrhage?

Fifthly. The structure and mutual relations of the venous sinuses of the uterus seem calculated to obstruct and prevent such a retrograde flow of blood in their tubes as to cause hemorrhage. The uterine veins are large, but of a compressed, flattened form, and arranged in several planes or floors above one another in the uterine walls. On examining these veins in several pregnant uteri, by dissecting them from the outer or peritoneal surface of the organ, downwards towards the mucous, I have found the following arrangement:—Each venous tube gives off numerous communicating branches to the veins of its own plane or floor, by a set of *lateral* foramina. When, however, a venous tube of one plane comes to communicate with a venous tube lying in the plane immediately beneath it, the foramen between them is not in the *sides*, but in the *floor* of the higher or more superficial vein, and the opening itself is of a peculiar construction. Looking down into it from above, we see the canal of the vein below partially covered by a semilunar or falciform projection formed by the lining membrane of the two venous tubes, as they meet together at a very acute angle, —the lower tube always opening very obliquely into the upper.[1] In the folds of these falciform projections, the microscope shows the common contractile tissue of the uterus. Do these semilunar or falciform projections, and the oblique communications of the lower with the higher planes of veins, allow the normal flow of venous blood from the deeper to the more superficial veins of the uterus, while after the placenta is separated, they prevent that anormal or retrograde flow of it from the more superficial towards the deeper-seated venous tubes which would produce hemorrhage? Here I suppose it possible that these falciform processes may act upon the same principle as the Eustachian valve, but in a less perfect manner, while by the obliquity of the communications between the different planes of veins it may be that blood does not so readily retrograde into the deeper vessels, in the same manner as urine does not retrograde into the ureters from the bladder, in consequence of the oblique opening of the former into the latter. Do the uterine fibres seen in the venous falciform processes tend to aid this valve-like mechanism, by diminishing, under contraction, the apertures between the different planes of veins?

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[1] In the course of dissecting the veins of a pregnant uterus, in the sixth month, from the peritoneal surface downwards, Mr Owen states that he "observed that where the veins of different planes communicated with each other, in the substance of the walls of the uterus, the central portion of the parietes of the superficial vein invariably projected in a semilunar form into the deeper-seated one; and where (as was frequently the case, and especially at the point of termination on the inner surface,) two, or even three, of these wide venous channels communicated with a deeper sinus at the same point, the semilunar edges decussated each other, so as to allow only a very small part of the deep-seated vein to be seen. It need scarcely be observed how admirably this structure is adapted to ensure the arrest of the current of blood through these passages, upon the contraction of the muscular fibres with which they are everywhere immediately surrounded."—*Works of John Hunter,* vol. iv. p. 68. See also Mr Goodsir's corroborative statement, in his admirable Anatomical and Pathological Observations, p. 61.

Sixthly. I have already shown that one cause contributing to prevent hemorrhage after the total separation of the placenta, is the abstraction from the uterine vascular system of the derivative or sugescent power of the maternal circulation in the placental cells, and the consequent tendency of the blood to flow in the more direct and freely communicating channels that exist between the uterine arteries and veins. Besides, the general and direct forward current of the blood along the course of these larger uterine veins diminishes, and, in a measure, destroys the tendency which it might otherwise have either to flow backwards, or to escape by any existing lateral apertures of the vessels.

Seventhly. Among the other remaining means by which hemorrhage is more or less prevented after the detachment of the placenta, I may mention, 1. The occasional presence of tufts of fœtal vessels left in the orifices of the uterine veins,[1] and forming not only immediate mechanical obstacles, but nuclei for the ready coagulation of the blood; 2. The formation of coagula in some of the collapsed venous tubes and orifices; and, 3. The presence for some hours, or even days, after delivery, of the collapsed decidua over the apertures seen in the veins on the interior of the uterus.

To these few and imperfect suggestions I am desirous to add one remark. Some of the natural means of arresting uterine hemorrhage that I have spoken of admit of extended anatomical examination being applied to their more perfect investigation; and several of the observations that I have ventured to offer in this section may be yet proved or disproved, by being tested by direct experiments with vascular injections thrown into the dead body.

Section VIII.—Instances of Placental Presentations, in which the Placenta has been artificially removed before the Child; Warnings by Authors against attempting the practice; Case of its successful adoption; Recorded Instances of it under supposed Mismanagement; Cases of Portal; Suggestion of Chapman; Modern Cases of Extraction, &c.

We have already found that various obstetric authors (see Section I.) have strongly declared the total inefficiency of nature in cases of placenta prævia. Several of them have especially warned us against attempting to imitate her in any of her modes of management of this obstetric complication, and against taking any hints from the principles of treatment which she seems to follow under the circumstances. Dr Ramsbotham has, in his admirable *Observations on Midwifery*, reported several cases of placental presentations in which the placenta was expelled before the child. In commenting upon these cases, he remarks, "Although it sa-

[1] See on this point the observations of Professor Reid in his excellent paper on the Anatomical Relations of the Blood-vessels of the Mother and Fœtus.—*Edin. Med. and Surg. Journal*, vol. lv. p. 8.

tisfactorily appears that a spontaneous detachment of the placenta is not necessarily followed by fatal consequences, that fact can furnish no precedent in practice for the artificial separation and removal of it. I think," he adds, "that few practitioners, aware of the probable consequences, would have the temerity to make the experiment."[1] "It would," he again observes in another place,[2] "be the extreme of hardihood in any practitioner to attempt the artificial separation of this fœtal appendage in imitation of its natural expulsion." In a similar strain Dr Burns, the distinguished author of the well known *Principles of Midwifery*, observes, "There are, doubtless, examples where the patient has, by labour, been safely, and without assistance, delivered of the child, when part of the placenta has presented. Nay, there have been instances where the placenta has been expelled first, and the child after it. These examples are to be met with in collections of cases by practical writers, and some solitary instances are likewise to be found in different journals. It would be much to be lamented, if these should ever appear without having, at the same time, a most solemn warning sent along with them, to the accoucheur, to pay no attention to them in his practice. I am convinced that they may do inexpressible mischief, by affording argument for delay, and excusing the practitioner, to himself, for procrastination. . . . These instances are not to be converted into general rules, nor allowed to furnish any pretext for procrastination. They happen very seldom, and never ought to be related to a young man without an express intimation, that he is not to neglect delivery, when required, upon any pretence whatsoever. There is scarcely any malady so very dreadful as not to afford some examples of a cure effected by the powers of nature alone: but ought we, thence, to tamper with the safety of those whose lives are committed to our charge?"[3]

Notwithstanding the strong and decided opinions expressed by the above authors and others, who might be cited for the purpose, I became so convinced—from two cases which I happened to see, and from the study of others that I found upon record—that the extraction of the placenta before the child was the proper plan of treatment in some cases of *placenta prævia*, that during the course of 1841, I laid before the Obstetric Society of Edinburgh the deductions derivable from thirty-nine cases that I had then collated, and proposed that the artifical separation of the placenta ought to be our line of practice in some instances of unavoidable hemorrhage. I was deterred at the time from publishing my investigations, under the fear that it would be considered rash in a young member of the profession, propounding from the data which I had,

[1] Practical Observations on Midwifery, part ii., p. 193. [2] Ibid. p. 286.
[3] Principles of Midwifery, p. 367.

so great a revolution in the usual practice of placental presentations. In the course of the spring of 1844, I laid before the same Society an additional number of cases, with the view of supporting the same opinion. The data which I then had to found upon were not so extensive as those I have now brought forward, but they were to my mind so distinct and decided, that notwithstanding the earnest counsels of Drs Ramsbotham, Burns, and others, I predetermined to have recourse to the artificial extraction of the placenta itself, in any case that I should happen to meet with in which the hemorrhage was very great, and where the rupture of the membranes was insufficient, or the operation of turning dangerous or impossible.

It was not till last autumn that I met with an instance in point. And I hope I will be excused for stating at length a case, which was to me so interesting in its nature and in its results.

Case of placenta prævia with great hemorrhage; rupture of the membranes insufficient; the os uteri not so dilated as to allow of turning: the placenta artificially extracted about two hours before the birth of the child.—I was called to see the lady who was the subject of this observation about five in the afternoon of the 1st October 1844. The gentleman who was in attendance upon her, Mr Hill of Portobello, informed me on arriving that she was between the seventh and eighth month of pregnancy; that she had almost daily suffered from considerable discharges of blood, without pain, for about a fortnight previously; and that she had been flooding with slight uterine contractions, for about ten or twelve hours before my visit. I found her a weakly person, with bleached features, and much sunk and prostrated by the preceding hemorrhage. The pulse was very small, soft, and compressible. The abdomen seemed much distended with liquor amnii. On examination I found the vagina filled with coagulated blood. It was exceedingly difficult for me at first to reach the os uteri, partly in consequence of the rigidity of the parts, and partly from the very high situation of the os uteri itself. On touching the os uteri, I found it still very slightly dilated, and on passing the finger through it, it came in contact with the anterior edge of the placenta; the presentation being one in which the placenta was attached to the posterior lip of the cervix uteri, and so as to project over the os itself. Mr Hill and I agreed together to allow of the escape of the liquor amnii, provided I could reach and rupture the membranes. I was enabled to do so with some little additional difficulty; and immediately upon perforating the membranes anteriorly an immense gush of liquor amnii took place, and the abdomen became comparatively smaller. I had hopes that I had done enough to arrest, in all probability, the hemorrhage under which the patient was evidently sinking. She got at the same time a large dose of the ergot of rye, and we waited with some impatience for the result. Stronger uterine con-

tractions came on, and shortly afterwards I re-examined in order to know their effect on the os uteri. I was distressed to find the vagina again filled with clotted blood, showing too manifestly that the rupture of the membranes and the supervention of more powerful pains, had been anything but sufficient to arrest the progress of the flooding. A small portion of the anterior part of the placenta was by this time threatening to protrude through the os uteri. I passed my finger by the side of it posteriorly, endeavoured to detach as freely as possible the organ, and then seizing the protruded part between two fingers, I gradually and steadily pulled the whole mass downwards into the vagina, and through the vulva. After accomplishing this, I confess, that for a few minutes I felt a degree of timidity at what most of my professional brethren would have at once denounced as a most improper line of proceeding on my part, and one in direct opposition to all the most approved and established rules in obstetric medicine. The result, however, was such as to answer my best expectations. All fears were dissipated, by ascertaining in a few minutes that there were no new clots, nor any new discharge of blood accumulating in the vagina, and that the head of the infant was presenting,—a circumstance which could not be previously ascertained. The cervix, however, was still so undilated as to hold the head from impinging directly on the interior of the os uteri—a band of contracted fibres high up in the cervical canal acting as a shelf on which it rested.[1] The patient got an additional dose of ergot, and I cut through the umbilical cord, and separated the placenta for the purpose of ascertaining, by ocular inspection of the mass, if the whole of the organ had been extracted. It was for this purpose placed upon a plate nearly two hours before the labour was completed. The infant came down slowly, but without any additional hemorrhage. The mother made a perfect recovery. Her pulse, during convalescence, never I believe, rose above 80.

In the preceding instance, I adopted the practice which I have detailed, as a matter of principle and choice, and as a result of observation and reasoning upon the cases which I had previously seen and collected. In a number of other instances upon record, the same practice has been adopted through reputed ignorance, on the part of the attendant, of the established rules of midwifery in this variety of obstetric complication. The details, however, of some of these cases, may both demonstrate the truth of the principle and practice which it is my wish to establish, and the practicability and

[1] See an analogous and very interesting case of placental presentation, with the os uteri largely dilated, and stricture in the upper part of the cervix, recorded by Dr James Reid, in the London Medical Gazette, vol. xvi. p. 145. Dr Reid's case was further remarkable as being one of those instances in which the placenta presented *without* any attendant hemorrhage.

propriety of the treatment itself. The first case I shall quote, is from Dr Collins' Treatise. He gives it as "an instance eminently calculated," to quote his own expressions, "to show the marvellous escapes occasionally witnessed when the gross ignorance of the attendant blinds him as to the danger of his patient."

Case of placenta prævia; the placenta removed many hours before the birth of the child.—"G. J. at her full time; was admitted in a state of extreme debility, her pulse so weak and frequent as not to be counted. The foot was found in the vagina, so putrid, that the skin peeled off on the slightest touch. The discharge was fœtid. Stimulants and cordials were freely given, and the child brought away without difficulty. The uterus remaining enlarged and relaxed, the hand was passed to remove the placenta, when there was *none* to be discovered, nor was there any hemorrhage. The membranes had ruptured and been discharged, a fortnight previous to admission, from which time, until the evening before she was brought to hospital, she had more or less hemorrhage. It was now ascertained that the placenta had been expelled the evening before her admission, and separated by the midwife in attendance. She had been twice visited by a medical practitioner, who bled her and gave her purgatives. She left the hospital well on the 13th day."[1]

Dr Ramsbotham describes graphically, in words that demonstrate his own surprise, the following similar case:—

Case of unavoidable hemorrhage; the placenta extracted before the child; the flooding arrested; safety of the mother.—Late in the evening (observes Dr Ramsbotham) of Thursday, May 7, 1818, during a temporary absence from home, a message was delivered at my house, desiring me to see a woman at Wapping, who was said to be very ill, but of what disease, or in what state was not mentioned. After some conversation between my servant and the messenger, it was agreed, that I should visit this woman early the following morning. By seven o'clock on the Friday morning, a second message was sent to countermand the first, with the intimation, "that the woman was better, and was doing well." A few days afterwards, I accidentally met the medical gentleman, who had sent the above verbal message, and enquired the nature of the case, upon which he wished to have my opinion a few nights before. To which he replied, "It was the strangest case I ever saw; it was a placenta presentation, with a most violent flooding; but I *got it away*." "Got what away?" said I: "Why, the *placenta*," answered he. "What! before the child?" asked I: "Yes, before the child," said he; "and

[1] Practical Treatise on Midwifery, p. 102.

the flooding ceased, and the woman did well; the child soon followed the after-birth."[1]

I am indebted for the following most interesting case to the politeness of Dr Cripps of Liverpool, and shall relate it in his own words. Dr Cripps' letter to me is dated 28th December 1844.

Case of placenta extracted ten hours before the child; arm presentation; no intervening hemorrhage.—I was sent for a few days ago, about 8 P.M., to see a poor woman who supposed herself to be at the early part of the last month of pregnancy with the third child. She had had occasional flooding to no great extent for a week previously. On the morning of the day on which I saw her, a surgeon had been sent for in consequence of the occurrence of several labour pains, together with a good deal of hemorrhage. This gentleman being out of town, his assistant went; he remained with her during the day, and in the evening finding things not going on so favourably as he wished, he sent for a friend of his employer's, who, soon after his arrival, sent for me. On making an examination, I found an arm down, which was much swollen, the pains very severe, I immediately gave one drachm of laudanum, and on their subsiding, turned without much difficulty. The funis was divided, only about four or five inches remaining, and appeared as though it had been cut. On expressing my surprise at this circumstance, I was informed that it was cut when the after-birth was taken away, about 10 in the morning." Not believing it possible that such could be the case, there *having been no hemorrhage whatever from that hour until the period of delivery*, I searched for the other portion of the navel-string, but not finding it, and being again assured that "the after-birth had come in the morning," I introduced my hand into the uterus, and made a most careful examination; it was contracting satisfactorily, but was perfectly empty. I watched her strictly until her complete recovery. I had every portion of discharge saved for my inspection, and am therefore perfectly satisfied that this is a case in which the placenta presented, and was removed 10 hours previously to the birth of the child, and that, in the mean time, *there was no hemorrhage whatever.*

The following brief notice of an analogous case, reported by Dr Löwenhardt, is extracted from Kleinert's Repertorium for 1842, Heft, tom. vi., p. 58.

Case of placental presentation; the placenta separated and pulled away before the child; transverse presentation; turning.—"Some time ago, Dr Löwenhardt of Prenzlaw met with a case where an ignorant midwife had separated the placenta, which presented all round, and removed it from the passages. She then discovered that the child

[1] Observations in Midwifery, Part II. p. 231.

was lying transversely, and attempting to turn it, she brought down an arm into the pelvis instead of a foot. The uterus being fully contracted, it was with difficulty that the author accomplished the turning of the child, and saved the mother."

Many years ago Baudelocque related, in a foot-note, in the second volume of his well-known System of Midwifery, an instance of the same kind.

Case of placenta extracted some hours before the child; arm and head presentation.—"A midwife had extracted the placenta some hours before I was called, and had not been able to turn the child, whose arm was engaged below the head. The uterus, irritated by the manœuvres of the midwife, was strongly contracted on the child, and discharged but a few drops of blood. Astonished, after the extraction of the child, to see the cord was torn off near the umbilicus, and more surprised still not to find the after-birth in the uterus, I discovered that it had been extracted a long time before my arrival, and carefully concealed."[1]

In the five cases, the particulars of which have been last given, the placenta was artificially extracted a considerable time before the birth of the child, in simple ignorance, and hence in defiance, on the part of the attendant, of the established rules of management in unavoidable hemorrhage. In the first case that I have detailed in the present section, I pursued, as I have stated, exactly the same practice, as a matter of election, and from the belief that, under the dangerous circumstances in which the patient was placed, this mode of treatment was the measure best calculated to suppress the extreme attendant hemorrhage,—to gain time for the rigid cervix uteri to dilate,—and to place the mother in the greatest relative degree of safety.

We have already seen, (p. 9,) that all practical authors in midwifery insist upon the artificial extraction of the child by turning, as the principal or only means of treatment in placental presentations, more especially when the presentation is complete. Almost all of them take occasion also to inculcate under some form or another the supposed propriety of not detaching the placenta more than is absolutely requisite, when the operator introduces his hand into the uterus for the purpose of grasping the foot or feet of the infant. It is well known that, in order to follow out this principle to its fullest extent, various authorities advise that, either as a constant or occasional rule, the presenting part of the placenta should be perforated, rather than that more of the attachments of the

[1] Baudelocque's Midwifery, Heath's Translation, vol. ii. p. 37.

placenta to the cervix should be separated during the operation;[1] and at all events, if the hand is introduced between the cervix and placenta, it is to be passed to one side only, and in such a way as to produce as little detachment as possible between the two organs.

While all thus perfectly agree upon the general rule, that the child should be extracted before the placenta, at the same time a self-evident and necessary exception to this practice is mentioned by Guillemeau,[2] (who was himself among the first, if not the very first, writer to inculcate the necessity of turning in placental presentations,) and by Mauriceau,[3] Daventer,[4] Roederer,[5] Ould,[6] Pugh,[7] Wallace, Johnston,[8] and other authors.[9] Occasionally by the time that turning seems required, or before the operator is called upon to pursue

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[1] For the practice of perforating the placenta, "the obvious reason," says Dr Rigby, is, "that by this means not more of the placenta may be separated than is necessary for the introduction of the hand, and consequently that as little increase of bleeding as possible may be produced by the operation; but if it be impracticable, as I have more than once found it, and it must ever be when the middle of the placenta presents to the hand, from the thickness of it near the funis, it must be carefully separated from the uterus on one side, and the hand passed till it gets to the membranes."—*Essay on Uterine Hemorrhage*, p. 61. Dr Foster inculcates the perforation of the placenta under all conditions as the best method of proceeding to turn in unavoidable hemorrhage.—*Principles and Practice of Midwifery*: London, 1781, p. 231–2. In one instance, Smellie tells us, he was obliged to employ it (vol. iii. p. 163.) Richter, in his *Synopsis Praxis Medico-Obstetriciæ*, p. 176, attributes the first recommendation of this practice to Deleurye and Mohrenheim. Deleurye (*Traité des Accouchemens*, p. 368,) argues, on the contrary, strongly and sensibly against the practice. Mohrenheim did not publish his "Abhandlung über die Entbindungskund," till 1791.

[2] Les Œuvres de Chirurgie, p. 320 (Rhouen, 1649.) Guillemeau's rules for the management of cases of *placenta prævia*, are so original, explicit, and brief, that I shall quote them here in full.—"Il faut observer deux choses. La *prémière* est de considerer si ledit arriere-fais est *peu* ou *beaucoup* advance et sorty; car estant *peu* advancé (apres avoir bien situé la mere) il sera remis et repoussé le plus diligemment que faire se pourra; et si la teste de l'enfant se presente elle sera conduite droict au couronnement, pour aider à l'accouchement naturel. Mais s'il se trouve quelque difficulté, et que l'on apperçoive que ladite teste ne se puisse tost avancer, ou que la mere ou l'enfant, ou tous deux ensemble soient debiles; prevoyant que l'accouchement soit long, sans faute le plus expedient sera de chercher les pieds de l'enfant, comme nous avons dit, et le tirer doucement par iceux. *L'autre* point a observer, est si ledit arriere-fais est *fort sorty*, et qu'il ne se puisse remettre, tant pour sa grosseur que pour le flux de sang qui l'accompagne ordinairement; joinct aussi que l'enfant le suit de pres, et ne demande qu'à sortir et venir au monde, il faudra, tirer du tout ledit arriere-fais: lequel estant tire et sorti sera mis à costé sans couper le boyau qui est adherant à iceluy; Car par la guide dudit boyau l'enfant se trouvera lequel s'il est viuant ou mort sera tiré par les pieds le plus dextrement que faire se pourra."—In the Provincial Medical and Surgical Journal for April 2, 1845, Mr Blenkinsop has inadvertently published a literal translation of the above passage into old English, as a piece of original writing, by Dr Percival Willoughby.

[3] Diseases of Women with Child; Chamberlen's Translat., p. 220.

[4] Art of Midwifery, p. 154. [5] Elemens de l'Art des Accouchemens, p. 368.

[6] Treatise on Midwifery, p. 76. [7] Ibid. p. 113. [8] System of Midwifery, p. 23.

[9] Smellie (Cases, &c. in Midwifery, vol. ii. p. 307,) states a case in which he followed this practice, the head being "hindered from advancing by the placenta." At p. 315, he observes, "I have had cases where the placenta has come down into the vagina before the child's head, and was *obliged* to deliver it first." It is remarkable that later authors should not generally mention a rule so obvious as that spoken of in the text. Yet among the writers of the present century, Petit is the only one, as far as I at present recollect, who even adverts to it. See his *Traitè des Maladies des Femmes*, tom. ii. p. 23. 1806.

this measure, the placenta has been already separated by the uterine contractions, and is so far protruding or pushed down into the vagina, as to fill up that canal, and prevent the easy introduction of the hand, or the ready extraction of the infant. Under such a complication the authorities I have named unite in stating, that we must, as a matter of necessity, first remove the detached and obstructing placenta, in order to have the maternal passages sufficiently clear for the operation of turning.

The cases and circumstances under which this point of management has been advised, are totally and essentially different, and founded upon a different principle from those in which I venture to recommend the extraction of the placenta before the child. A quotation or two from one or two of the authors to whom I have referred will point this out. I shall select for this purpose the observations of Mauriceau and Roederer, as being at once the simplest and the most explicit on the matter.

"If," observes Mauriceau,—and I give, as nearly as possible, a literal translation of his words, "the placenta only presents at the os uteri without passing out, and the membranes are still entire, as sometimes happens, the accoucheur will push aside a little the part of the placenta that presents, till he reach the membranes, which he will immediately rupture with his fingers, to allow the waters to escape, and at the same time to turn the child, if it presents by any other part than the feet; by which he ought immediately to draw it out. For it must be observed, that the afterbirth, which presents first, is now nothing more than a foreign body in the womb, when it is entirely separated from it, as it is now; and that in this case one ought, as it would seem, to draw it out before the infant. Nevertheless, as it is strongly attached to the membranes surrounding it, one would not easily accomplish this; for we could not pull away the body of the placenta without at the same time pulling away the membranes that surround the body of the child; besides, the membranes that line the whole of the interior of the womb. from their smooth and polished surface, allow the child to be more easily turned, and prevent by their interposition the womb from being easily injured during the operation; which would not succeed so well if the placenta were just pulled away. For these reasons it is much more sure to draw away the infant first; which is, moreover, on these occasions, so feeble, that it would soon die, unless promptly assisted. *But if the surgeon find that the afterbirth is almost completely escaped from the womb*, and that its membranes have been almost entirely broken up and torn, *in this case he ought to draw it out;* for, besides that it would now be useless to push it back into the womb, it would very much incommode the surgeon in his operation, and make him lose time in assisting the child."[1]

[1] Maladies des Femmes Grosses, &c., tom. i. p. 332. Speaking of Mauriceau's opinions and practice in placental presentation, Dr Lee observes, "The rules for the treatment of these cases are laid down with the greatest precision. When the placenta was

Roederer, according to the just and candid remark of Dr Edward Rigby, "stands pre-eminent as being the first author who gives a distinct and complete description of this [the unavoidable] species of hemorrhage."[1] After stating the propriety of passing the hand between the cervix and placenta, and promptly extracting the child by turning when the hemorrhage is great, he adds, in relation to the point I refer to, "If the placenta is entirely detached, and is arrested in the vagina, and opposes the passage of the hand, it ought to be brought out with the clots that fill the vagina. But if the hand can be introduced, the placenta should be left, that it may shut up the passage by which the blood and liquor amnii, which distend the womb, might escape. In all cases when it is adherent to the womb, in whole or in part, it is most advantageous both to mother and child to leave it."[2]

The preceding extracts show that, as I have stated, the cases and circumstances under which the removal of the placenta before the child has been recommended by some of the older authorities, are entirely different from those in which I wish in these pages to insist upon its propriety. I advise its separation in cases in which it is still attached to the cervix, and often still contained within the undilated os uteri; they advised its removal only in cases in which it is already separated from the cervix, and expelled through the dilated os uteri. They began their practice of removing the placenta at the very point at which I would generally end all my interference with it, viz. *after* the placental mass was completely detached. I would employ its artificial detachment as a measure of election and choice; they resorted to its removal from the passages, after it was detached by nature, merely as a measure of self-evident necessity and compulsion. I recommend its separation upon the *pathological* principle of arresting the existing hemorrhage, and so far cancelling the immediate source of danger to the mother; they recommend its abstraction on the *physical* principle of clearing the obstructed maternal passages, and gaining more free space for the operation of turning. They removed the placenta in order to be able to have recourse immediately to turning. I would remove

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entirely separated, then only did he consider it as a foreign body, and recommend its extraction before the child; but to this practice, he states, as an obvious objection, that the placenta is strongly attached to the membranes which surround it, and that it cannot be drawn out without the membranes enveloping the body of the child being drawn out also. Mauriceau has related seventeen cases of uterine hemorrhage in the latter months of pregnancy from presentation of the placenta, and in sixteen of these delivery was accomplished artificially by passing the hand through the opening formed by the separation of the placenta from the uterus, rupturing the membranes, and turning the child. Two women died after this operation, and one who would not consent to have it performed, died undelivered."—*An Historical Account of Uterine Hemorrhage in the latter months of Pregnancy, by Dr Robert Lee,—Edin. Med. and Surg. Journal*, 1839, p. 382.

[1] System of Midwifery, p. 252.

[2] Elémens de l'Art des Accouchemens, p. 368. Paris, 1765.

it, in order to prevent the necessity of having recourse at all to that operation.

After having become interested in the investigation of the present subject, I made a somewhat extensive research among obstetric works and essays, with the double object of ascertaining the average mortality to the mother in placental presentations under the common modes of management, and with the view of attempting to ascertain if any author had previously practised, or proposed as a plan of treatment, the method which had suggested itself to my mind of artificially separating; and, if necessary, of removing the placenta instead of the infant, and operating thus *not* upon the child, but upon the after-birth. The results of the first part of the inquiry I have given in a preceding page. In reference to the second point, I was long under the belief, that I was original in the idea of a practice, which, as far as I was myself concerned, was in the first instance the result of simple reasoning upon the data afforded by two cases that I had personally observed, and by the histories of a few others that I had read of or collected.

At the time I laid a summary of the present paper before the Edinburgh Medico-Chirurgical Society in December last, I had not met with any cases or remarks which altered my opinions in this respect. I stated at the time that I was the more surprised at such a result, for believing, as many of the older authorities did, that before the placenta could be found presenting at the os, it had already become detached, and fallen down from the higher parts of the uterus, I fully expected to meet with some of them recommending its removal at an early stage of the labour, if not upon the principle of arresting the attendant hemorrhage, at least for the purpose of clearing away a supposed foreign and obstructing body. They appear to have been generally intimidated from following such a line of practice by the dread of injuring the unruptured membranes, and through them the inner surface of the uterus, as intimated in the quotation which I have already made on this point from Mauriceau. And hence also the removal of the placenta, when it was once found completely or almost completely protruded from the uterus, and obstructing the vagina so as to impede turning, was justified, on the similar ground that before this could happen, the membranes were necessarily torn, and consequently no evil effects would now ensue from this mode of interference.

Since these observations were communicated to the Medico-Chirurgical Society, I have fallen in with two cases recorded by one author, and a suggestion incidentally offered by another, both of which bear, as it appears to me, so importantly upon the history of the practice that forms the immediate subject of these remarks, that I shall make no apology for dwelling briefly upon them.

During my former researches among the older authors, I did not examine in detail, as I certainly ought to have done, into the cases

of *placenta prævia* detailed in the work of the celebrated Paul Portal. In drawing up the table of maternal mortality in placental presentation, (see page 6th of the present essay,) I had pre-determined to take the returns of which it consists, from such authors or sources only, as mentioned upwards of at least ten cases, in order that I might arrive at more certainty and statistical truth in the calculation. I took it for granted that Portal's cases did not come within this range, in consequence of Drs Rigby,[1] Lee,[2] and others, erroneously speaking of them as being only eight in number. On the other hand, I knew well that this accurate and original observer was acquainted with the fact, that in placental presentations the placenta was originally fixed over the os uteri, and had not fallen down there after its attachment to the fundus. Hence, I did not expect to meet among his cases with any instances in which the placenta had been artificially extracted before the child as a foreign body, or any deviation from the treatment usually followed. In two cases, however, which he has described, he most distinctly adopted the practice of detaching the whole placenta immediately before extracting the child. As these cases appear to me to be in various respects, not only historically, but practically interesting, I shall take the liberty of quoting them at full length. They afford strong additional instances of the success of the practice which it is my wish to inculcate.

"*The Delivery of a Child with the after-burthen foremost.*—April the 7th, 1672.—I was called to a woman in St Mederic's Street, being in the sixth month of her reckoning, and troubled with a violent flux of blood. I told her immediately, that without being delivered forthwith, she was in danger of her life. Dr Cresse, a Paris physician, was of the same opinion, and ordered her immediately to be let blood; however, we staid a little to see whether nature would help itself, it happening sometimes that such fluxes cease when the child comes to the birth well turned. But the woman, growing weaker and weaker, her husband and friends asked my opinion once more, and I answering, that the delivery of her was the only way to secure her life, they desired me to delay no longer.

"Whereupon I brought two of my fingers (well greased with butter) into the inner orifice of the womb, and, finding the same opened to the bigness of a French half-crown piece, I spread my fingers

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[1] "In Portal's cases in Midwifery there are eight in which he was under the necessity of delivering by art in consequence of dangerous hemorrhage, and in all of them he found the placenta at the mouth of the head of the womb."—*Rigby's Essay on Uterine Hemorrhage*, 6th edit. p. 22.

[2] "Portal's Treatise, 1685, contains an account of eight cases of uterine hemorrhage, in which he found the placenta not merely at the mouth of the womb, but adhering to the whole neck of the uterus. In several of these cases, he felt the placenta adhering all round to the internal orifice of the uterus. In those cases the treatment employed by Portal did not differ from that which had been employed by Parè, Guillemeau, and Mauriceau, the propriety of artificial delivery by turning being then as completely established as at the present time."—*Lee's Clinical Midwifery*, p. 140.

in the nature of a screw, and thus extending it, brought in my hand, and felt the after-burthen foremost. I separated the same to open my way to the membranes, which being opened, the water came forth, and I drew out the after-burthen, that it might not be in the way afterwards.[1] Then, searching after the child's feet, I took hold and pulled out one, which I baptized; and, wrapping a cloth round the foot, I accomplished the delivery of a daughter of six months, after my usual method. Immediately after the woman recovered of her swooning fits, she began to breathe and speak, telling us that she felt herself something stronger, but relapsed soon after; yet, being recovered again, by the care of Dr Cresse, she did very well afterwards. We applied a plaister against the flux, made of the flower of gips used by the plaisterer, mixed with the best vinegar, laying it to the belly above the womb, and above the hips. The next day we prescribed a clyster of barley and white bread, boiled together, and mixed with three ounces of honey of violets; but the nurse, mistaking the matter, took honey of roses instead thereof; whence it is obvious how careful women ought to be in choosing their nurses, since, by the management of clysters only, many dangerous symptoms have ensued through the carelessness or ignorance of the nurses. Wherefore women ought to pitch upon such nurses as are used to attend in lyings-in, and such as they know that will not be employed in the small-pox and other infectious distempers, which thus may be communicated to the woman in childbed. All nurses ought to be cautious not to give medicines to women in childbed, without the advice of a physician, surgeon, or expert midwife; and especially not to apply astringent remedies in the beginning of the flooding, which, if it succeeds ill, they are sure to lay the blame on the man-midwife, or midwife. 'Tis but lately that I knew such an ignorant and presumptuous nurse, who, in the beginning of the flooding, washed the gentlewoman under her care with red wine only, which, stopping the flooding, &c., fever ensuing, the patient was forced to be let blood several times in the arm and foot, and yet they had much ado to save her."[2]

"*The delivery of a woman affected with a most violent flux of blood.* —January 14, 1679.—I was called out in the morning at four o'clock, to deliver a gentlewoman in the street called Gervais Laurent, at the foot of the bridge of our Lady, in the parish of the Holy Cross. This gentlewoman being about eight months with child, was seized with a most violent flux of blood, which having continued for

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[1] I shall quote the original French of this important passage:—"Je glissay ma main dans l' entrée de la matrice, òu je sentis l' arrière-faix qui se presentoit. L' ayant separé, afin de me frayer le chemin, je sentis les membranes des eaux que je perçay, et les eaux s'estant écoulées, je tiray l'arrière-faix le prémier, afin qu'il ne m'incommodast point á la sortie de l'enfant."—La Pratique des Accouchemens, par Paul Portal, Paris, 1685. P. 207.

[2] Compleat Practice of Men and Women Midwives, by Paul Portal, p. 148, Case 43. London, 1763.

ten or twelve days, she was reduced to a miserable condition. Upon search made with my fingers (well greased), I found the whole vagina or passage filled with clods of coagulated blood, notwithstanding which the flux continued. As soon as I had brought out the clods of blood, I conveyed my fingers further into the orifice of the womb, which I found very thin and soft, and so wide, that I could put in three of my fingers foremost. I searched with one finger first, and found the after-burthen foremost, and closely joined round the inner orifice of the womb, which was the occasion of the excessive flux of blood; and, as it had reduced the woman to a very low condition, so this, joined to the other circumstances, made me fear the life both of the woman and child. I desiring, therefore, the assistance of a physician, Dr Biendisant was sent for, who, finding the poor patient not in a condition to dispense with many remedies, prescribed her only a mixture of purslane and plantain water, three ounces each, half a dram of the confection of hyacinths, without musk; prepared pearls, one scruple, mixed with an ounce and a half of the syrup of pomegranates. This stopped the flux for a while, yet not quite; so that her weakness increasing every minute, it was resolved to have her delivered, notwithstanding the great danger which must needs attend it; but, considering her death was infallible, unless she was delivered, I went to work; though as I laid her across the bed, there appeared in her not the least signs of sense or motion, so that every body concluded she would die under my hands. However, I found some means to convey my hands (well greased before) into the inner orifice of the womb, where I again felt the after-burthen fastened to it, as I had told Dr Biendisant before. I peeled it off by degrees, and brought it out; and then, turning my hand again in the womb, the first thing I met with was the navel-string, along which I guided my hand first to the child's belly, and then downwards to the thigh, and hence lower to the leg and foot, which I brought out and baptised.[1] Whilst I was pulling this foot, the other followed, and the whole body after it, as it has been observed frequently before. The child being quite alive, the parish priest of the Holy Cross (who had before administered the sacrament unto the mother) had the opportunity of baptising it, though contrary to his and all our expectations. Immediately after the delivery, the woman recovering in some measure her senses, Dr Biendisant prescribed the following cordial: of succory and bugloss water, three ounces each; of the confection of alkermes without musk, half a drachm; of prepared pearls, one scruple; and syrup of maidenhair, two ounces. About two hours after, she was ordered to take half a cupful of broth only, for fear of overcharging her stomach. She was much better the next day, yet not without some symptoms of

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1 "Je separay tout doucement cet arriere-faix, et je tiray dehors; ensuite je glissay ma main dans la matrice. La premiere partie qui se presenta, fut l'ombilic que je suivis jusques au ventre, apres lequel je suivis la cuisse jusques a la jambe et au pied, que je tiray à l'orifice externe de la matrice sur lequel je jettay de l'eau, pour endoyer l'enfant sous condition." See original French edition of Portal's work, p. 293.

a fever, against which a clyster was ordered, made of the decoction of the cooling herbs, with three ounces of honey. The second day after the flooding stopped, she recovered again by the use of the before-mentioned cordial. However, she complained of a tension and pain in her belly (which was much swelled), as also in her hips, wherewith she had been affected before her delivery: she was also afflicted with a violent pain in the head (the ordinary symptom of all excessive fluxes of blood), which continued even after her lying-in, with an intermittent fever: she was also troubled with frequent bilious dejections, or a looseness, against which we prescribed her clysters of the decoction of emollient herbs, with lintseed; yet, after some time this woman recovered her health, except that three weeks after her lying-in, she lost the sight of one of her eyes by a violent defluxion, which, by all the art that could be devised, was never removed thence. The cause of this disaster [1]

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[1] This is perhaps the earliest case on record of that *Phlebitic* or *Puerperal Ophthalmitis* to which the attention of the profession has been particularly called in our own day by Drs Hall and Higgenbotham, Dr Locock, Dr M'Kenzie, and others. In attributing it to a "humour contained in the veins," Portal almost forestalls the pathology of the disease accredited at the present day. An instance of this destructive ophthalmia occurred two years ago, in the practice of my friend Dr Graham Weir, after, as in Portal's case, a placental presentation. The patient also ultimately recovered. I know of a case in which both eyes were affected. Some years ago, in a case of placental presentation, in which I turned the child, I saw come on in a different part, namely, the region of the parotid gland, a secondary inflammatory deposit from "a sharp humour contained in the veins, and carried upwards and settled in the head." I have met with one other case of fatal *Puerperal Parotitis*. Dr Beilby attended with me a case of partial placental presentation, where secondary inflammatory affections of a very unusual kind supervened and carried off the patient five weeks after delivery. The lady, about a year before becoming pregnant, laboured under a very severe attack of rheumatic endocarditis. During the latter period of utero-gestation, she suffered greatly from attacks of difficult breathing, which amounted sometimes to orthopnœa. About the eighth month, hemorrhage suddenly supervened, and I immediately ascertained, that, in addition to her other complications, we had the placenta projecting over the posterior lip of the uterus. After the os uteri was nearly dilated, the membranes having been ruptured some hours before, without suppressing the very severe and exhausting hemorrhage that was present, I extracted a child, which is still living, with the long forceps. The mother seemed for some days to be making a most perfect and satisfactory recovery. Some symptoms of irritation, however, supervened, and during the second week after her confinement, I found, on making my morning visit, that there was no pulse to be felt in the right arm lower than the elbow, whilst it was distinct and strong down to that point. This fore-arm felt, at the same time, coldish, stiff, and benumbed. In the course of a few days, the pulsation in the right radial artery gradually but feebly returned, whilst the circulation in the one and the other leg seemed to be similarly affected. At last, unequivocal symptoms of erratic phlebitis began to show themselves, and five weeks after delivery, ended in a fatal attack of phlegmasia dolens in the left arm and left side of the face. On opening the body, the *vena innominata* of the left side, and its large affluent trunks, were found entirely obstructed by coagulable lymph. The humoral artery at the bend of the arm was shut up by a coagulum; but the inner coat of the vessel had no appearance whatever of laceration such as was seen in all the cases of spontaneous obliteration of arteries so well described by the late Professor Turner, in the *Edinburgh Medico-Chirurgical Transactions*, vol. iii. p. 105. The uterus was nearly of its natural dimensions, and did not present any traces of diseased action. The valves of the left side of the heart were profusely covered over with small wart-like excrescences. Was the obstruction of the artery, or arteries, in this case produced by any mechanical cause (as one of the vegetations separated from the cardiac valves), carried along, in the case of the arm for example, to the bifurcation of the humoral artery, and impacted there? Was it not rather the result of an original *Puerperal Arteritis*? Or might it be the effect of effusion of coagulable lymph from phle-

I attribute to a sharp, viscid, and bilious humour, contained in the veins, which, being put in motion by the violence of the pain this woman suffered during her labour, and the anxiety she lay under, was carried upwards and settled in her head."[1]

In addition to the two preceding cases, Portal gives a detailed account of six other placental presentations which came under his care, and mentions six others that he had seen, but of which he does not give the full particulars.[2] In one of these cases the uterus contracted so strongly, as to push the child through the placenta. The mother recovered. In all his other cases he seems to have introduced his hand, and turned the infant; but in none of them, with the exception of the two we have already quoted, does he state such particulars as to show whether, as in them, he entirely separated the placenta immediately before turning the child, or only partially separated it in that position, so as to enable his hand to pass into the uterine cavity, for the purpose of practising version of the infant. Unfortunately he in no passage states to us in the way of remark, or otherwise, what special practice, or principle of practice, he recommended or followed in placental presentations, and in only one part does he throw out any hint of the reason which induced him to separate the placenta in the two cases I have cited. The hint in question I have already had occasion to quote, as given incidentally in the details of the first case which I have already cited, (see Case 43, p. 73.) "I drew out," he observes, "the after-birth first, that it might not incommode me during the passage of the infant.—(*Je tiray l'arriere-faix le premier, afin qu'il ne m' incommodast point à la sortie de l'enfant.*") p. 209. And in all probability this was his sole and only reason for the practice. For if he had separated the placenta with any idea whatever of the principle under which I have recommended it, namely, that of totally arresting the violence of the attendant hemorrhage,, and averting the principal or only danger to which the patient is subject in placental presentations, he certainly would not have practised what he tells us he did,—the instantaneous extraction of the infant afterwards.

I have already (at page 13) mentioned some particulars of a very interesting case of expulsion of the placenta before the child, detailed by Mr Chapman, surgeon at Ampthill, Bedfordshire, and reported by him in the 4th volume of Dr Duncan's Annals of Medicine, pub-

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bitic inflammation in the coats of the artèry, a secondary phlebitic deposit upon the lining arterial membrane? Dr Parry, in his work on the Arterial Pulse, (p. 139), mentions an analogous case of local stoppage of the pulse in the arm of a puerperal patient. It took place two or three days after parturition, and was attended with coldness of the arm; but the power of motion remained. The other arm had lost all power of voluntary motion, but the pulse was distinct in it. The patient soon died, but a dissection was not obtained."

[1] "Compleat Practice of Men and Women Midwives," p. 214, Case 69.

[2] Ibid. pp. 29—105, 107, 135, 143, 166, 169, 250.

lished in the year 1800. My attention has been particularly drawn to three brief remarks that Mr Chapman appends to his case. One of these remarks is specially deserving of note, from containing, as far as I am aware, the first explicit suggestion as to the proper principle of treatment in some placental presentations. I shall quote it in the author's own words. "From the expulsion of the placenta to the birth of the child was full four hours. She (the mother) lost little or no blood. How far does this suggest a different practice to that in general followed? I mean that of delivering the placenta previous to delivering the child, in those cases of alarming hemorrhage where the placenta is situated on the side of, or over the os uteri."[1]

Up to the time at which I communicated the views contained in the present memoir to the Medico-Chirurgical Society in December last, the two cases that I have quoted from Portal, and the preceding interrogatory of Mr Chapman, contain, as far as I have been able to learn, all that had been put upon record with reference to extraction of the placenta before the child, in *placenta prævia*. Since, however, the first part of the present paper was printed for the *Monthly Journal of Medical Science*, I have obtained such information as to convince me, that several years ago, a medical teacher and practitioner of the highest distinction in Manchester, was aware that the total separation of the placenta in unavoidable hemorrhage was capable of arresting the attendant flooding, and adopted this practice as a measure of treatment in one of the classes of cases that I shall have occasion to consider under the next section—namely, where the woman is too exhausted to allow with safety of the operation of turning. The gentleman I allude to, was the late Mr Kinder Wood, who for some years was lecturer on Midwifery in the Manchester Medical School. He died in 1830. His opinions on this matter were never, as far as I have been able to ascertain, known or divulged beyond the range of his own immediate friends and pupils; and one of his own colleagues in the Manchester Lying-in Hospital (Mr Wood), confesses he was unacquainted with his views till they were mentioned to him within the last few months.

In a short and interesting biographical account of Mr Kinder Wood, published in the *London Medical Gazette* for 1830, it is stated that he left behind him a volume of midwifery essays all but ready for the press.[2] One of these papers was entitled, "An Essay on Uterine Hemorrhage, and the best mode of Treatment in

[1] Annals of Medicine, vol. iv. p. 303.

[2] The biographer (Dr Bardsley) states,—"Mr Wood had been employed for some time in collecting materials for a separate volume on midwifery, embracing the consideration of some of the most important points connected with the practice of the art. The essays 'on Uterine Hemorrhage, and the best mode of treatment in alarming cases of this kind;' on 'Rupture of the Uterus during Labour;' on 'Inversion of the Uterus;' and on 'Impracticable Labour from Distortion,' are left in such a state of readiness for the press, as to require only a few verbal, and other trivial alterations, before being submitted to the public eye, should this be the intention of Mr Wood's family."—*London Med. Gazette*, vol. vii. p. 624.

alarming cases of this kind." It is deeply to be regretted that this volume has never been given to the public, as the opinions of so acute and able an observer as Mr Kinder Wood on any points connected with the obstetric profession, are almost certain to be sufficiently valuable to have entitled them to a better fate. Dr Radford, who succeeded Mr Kinder Wood as lecturer on midwifery in the Manchester school, purchased, as I am informed, the manuscript volume I allude to, after the author's death, and has lately published the following observations and cases of Mr Kinder Wood, relative to unavoidable hemorrhage, probably from the manuscript in question. I have very great and sincere pleasure in inserting them here at length, as a piece of posthumous justice to the memory of a man of distinguished professional attainments.[1]

"If we find so much exhaustion as to make us fear the effect of further hemorrhage, during artificial delivery, the first step after passing the hand, must be to detach the whole of the placenta; by this hemorrhage will be completely suppressed, for the effect of passing the hand through the os uteri, and throwing of the placenta, will always be to produce so much contraction as to arrest the bleeding from the small decidual or uterine mouths. It is satisfactory to know that the child is rarely living in these cases of exhaustion, its blood being poured out through branches of the placental structure, along with that of the mother; and when brought down, its appearance, like that of the mother, is bleached and exsanguined. The time required to separate the placenta is very short, and the loss of blood during the attempt exceedingly trifling. I know from experience, that when the placenta is wholly detached, the hemorrhage will cease."

"Case 1. I was desired to see Mrs Clayton, Lad Lane. The hemorrhage had been going on several days, under the inspection of

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[1] Since I communicated the present memoir to the Medico-Chirurgical Society, Dr Radford has himself given and published a lecture on galvanism, in which, among other ingenious suggestions, he proposes the detachment of the placenta to be adopted in conjunction with galvanism in cases of *placenta prævia*."—(*Provincial Medical and Surgical Journal* for Dec. 24, 1844. In this lecture he limited the practice in question to cases of "exhaustion,"—as Mr Kinder Wood had done. Latterly, however, in the same journal, (see Number for January 22, 1845,) he has adopted more fully, and published, my previous ideas of applying the detachment of the placenta to other cases of placenta prævia, besides those in which there is simple exhaustion, erring, however, in this, that he conceives the practice is one which cannot be attempted until the cervix and os uteri will safely allow the introduction of the hand. Under the next section we shall find that this would exclude an important range of cases to which the practice is specially applicable. I had an opportunity of stating my views on the artificial detachment of the placenta to Dr Radford when he made a visit to Edinburgh last year. Dr Campbell, the well-known Lecturer on Midwifery in Edinburgh, and a friend of Dr Radford, heard the subject discussed between us. When writing lately upon this matter, Dr Campbell observes, "It does strike us as remarkable, that Dr Radford, while on a visit to this city something less than a year ago, did not, when this subject was the topic of conversation, make known his knowledge of Mr Kinder Wood's views."—The *Northern Journal of Medicine* for July 1845, p. 90. See further the *Provincial Medical Journal* for Feb. 5th, Feb. 26th, and March 19th, 1845.

a female midwife, without any assistance or advice. The discharge had been excessively profuse, and was coming away in gushes, with slight pain, every two or three minutes. She was extremely exhausted; of a deadly paleness, very cold, with a quick and feeble pulse; the os uteri was moderately dilated, the cervix obliterated, and the placenta presenting. I feared the effect of hemorrhage, which must occur during the act of delivery in the common manner. The patient was placed in a proper position, and a little brandy and water exhibited, and the placenta completely detached, as the hand dilated the os uteri, and before reaching the feet of the child. No hemorrhage succeeded the separation. The patient recovered favourably, but slowly. October 4, 1821.

"Case 2. I was desired to see a poor women in Newberry Street. I found from the female midwife in attendance, that the discharge had been going on long and copiously. The poor patient was extremely exhausted. Feeling that she could not survive long if left to nature, and that she could not bear the hemorrhage consequent upon the common operation, I separated the placenta, brought down the feet of the child, and delivered. The effusion produced by separating the placenta was extremely slight, and it ceased upon effecting the complete detachment. The child was dead, and tending to putrefaction. A stimulant was given before the operation, and during its continuance, but the heart never recovered its energy, nor the skin its warmth. She died in about an hour, from pure exhaustion. November 1, 1821.

"Case 3. I attended Mrs T., Newton Heath. She was very much exhausted. It was obvious she could not bear the loss of blood consequent upon the ordinary delivery. A cordial was now administered. The hand was introduced, and the placenta, which was adherent over the os uteri, was completely separated, the membranes ruptured, and the feet seized. The child was easily delivered. She only survived the operation a very short time, although the hemorrhage ceased from the moment the placenta was detached."

"Case 4. I was called to Mrs B., January 1822, aged 25, St James's, who was violently flooding. I found her cold, and her pulse scarcely perceptible; os uteri partially dilated and soft; brandy and water given; the discharge still continued; she was much exhausted. The hand was introduced, the placenta detached, and the membranes ruptured. There was no further discharge, but she died in a few hours afterwards, although stimulants were freely administered."

"Case 5. On the morning of the 11th April 1822, I was desired by a female midwife to see Mrs Rawson, in Little Lever Street. She was in the latter end of the eighth month of pregnancy. She had sustained frequent and copious discharges the two previous months, and which were very profuse during the night. The pains were slight, but always attended with fresh discharge. The pa-

tient presented a very distressing appearance. The pulse could not be counted; the lips were white; she was very cold, and spoke in a whisper; she had frequent syncope. Warm brandy was freely administered. The patient was placed with the utmost care slowly and gently on the side, and upon making an examination, the os uteri was found low, soft, and dilated about the size of half-a-crown, the cervix was obliterated, the placenta was found over the os uteri, one portion was loosened. Convinced that the patient could not bear immediate delivery, and satisfied that the hemorrhage would be fatal very early if she was left to nature, I insinuated the hand through the os externum and os uteri, detaching the placenta by sweeping the fingers beneath it, as the hand was passed forwards. The soft parts yielded freely, and the operation was done quickly and easily, and with very trifling loss of blood. The presence of the hand excited uterine contraction, and seemed to rouse the languid patient. A stimulant was given during the operation. The head was found presenting. After the placenta was separated, the membranes were ruptured, and the hand slowly withdrawn. She was ordered to remain in a state of perfect and complete rest, to take light support, and a stimulant mixture every three hours. The labour pains became stronger about six hours afterwards, and in an hour expelled the placenta, and a dead child, tending to putrefaction. No hemorrhage occurred when the hand was withdrawn, after detaching the placenta. The patient regained health slowly, and had a severe attack of phlegmasia dolens.

"In some cases, I have been called to attend when the ordinary method of delivery has been adopted, the patients died, and this led me to modify the practice, and which I adopted in some of the above cases by detaching the placenta, rupturing the membranes, and then delivering the child; but after due consideration, I was again induced to vary my plan; and in those cases where we can have no hope of saving the patient if we proceed to delivery, however well the operation be conducted, I have no hesitation in recommending that the placenta be separated completely, and the membranes ruptured, that the hand be withdrawn immediately upon this being effected, leaving the child and placenta behind. By this practice, the patient will be placed precisely in the situation which occurs in the most favourable cases of recovery [delivery] by the natural efforts. I conceive no fact in midwifery rests upon a more solid foundation, than that this hemorrhage will cease upon separating the placenta, and by this practice the patient is placed in as favourable a situation as is possible for recovery. Time will be gained to support her by proper means, and which can be used with greater freedom, as the hemorrhage is infallibly suppressed by this operation."

On communicating, a few months ago, my ideas upon the subject of this memoir to my esteemed friend Dr Beatty of Dublin, he

favoured me with the following account of a very interesting and illustrative case from the note-book of his late father. It is dated July 28, 1835, (1825?)

Case of unavoidable hemorrhage; placenta probably entirely separated for about twenty-four hours before delivery; hemorrhage arrested by it.—"The practice I adopted in this case was such as I never tried before, or heard of, and from its success I think it necessary to note it. This lady sent for me at four o'clock in the morning of the 27th. I found that she had been flooding excessively, and, as the nurse said, she was in a sea of blood. She was within three weeks of her full time. I examined and found the placenta directly over the os uteri. I sent for Dr Duke, and on his coming, I introduced my hand into the vagina, and finding I could not turn without more difficulty than I thought necessary, it occurred to me to separate as much of the placenta as was within my reach. This I did to such an extent as entirely stopped the hemorrhage, except a trifling oozing. She continued all day without pain, and about three o'clock the following morning, labour set in, and she was delivered of a still-born child at half-past four o'clock, A.M. She had no further flooding, and is likely to do well."

Since the publication of the first part of the present essay, three instances have been published in the Medical Journals, in which the proposed practice was adopted,—one by Mr Wilkinson of Spalding, another by Dr Walker of Chesterfield, and a third by Dr Maclean of Edinburgh. I shall append an abridged detail of these cases.

Case of unavoidable hemorrhage; flooding suppressed by the artificial separation of the placenta; patient delivered in an hour and a-half afterwards.—Mr Wilkinson was called, on the 7th June 1843, at 12 P. M., to a woman between six and seven months advanced in pregnancy. "Three weeks previous to my being sent for," says he, "there had been, I was informed, very great hemorrhage, which had continued, more or less, up to the time of my seeing her. On the evening of the 7th, it had been very considerable, and previous to my seeing her, excessive. I found the os uteri dilated to the size of something less than a five shilling piece; the placenta presenting; the hemorrhage excessive; the pains very feeble. She was greatly exhausted; the pulse scarcely perceptible; the countenance blanched, and I found that she must sink. I directed some brandy and water to be got down immediately, and also a scruple of ergot of rye. I passed first three fingers, and with as little delay as possible, the whole hand, into the uterus. The gush of blood was at first great; the placenta, however, was quickly and completely detached, and the hemorrhage *almost at once* ceased. I waited a while with my hand in the uterus; I then brought away the pla-

centa, and immediately re-introduced my hand, with a view of bringing on contraction. The head of the child presented; I turned; but feeling that my patient was not in a state to bear immediate delivery, I waited an hour and a half. She then having somewhat rallied, I delivered. She remained during the first two or three days in a most exhausted state, from which, however, she gradually recovered. I feel satisfied," Mr Wilkinson adds, "that had the usual plan been adopted in this case, so great had been the hemorrhage previously to my seeing her, that she must have sunk."[1]

Case of placental presentation with exhausting flooding; placenta extracted, and flooding suppressed; arm presentation; turning.—Dr Walker was called to see Mrs H—w, about four hours after labour with her sixth child had begun. She appeared in a most alarming state of exhaustion, exhibiting in an extreme degree all the symptoms consequent upon great loss of blood. "On making an examination," writes Dr Walker, "I found the vagina filled with clotted blood, the os uteri fully dilated, and a large portion of the placenta presenting, nearly closing the orifice of the uterus. With some difficulty, I passed my finger round the anterior edge of the placenta, to ascertain the presenting part of the child, and felt what I thought was either a shoulder or the nates. The attempt increased the hemorrhage slightly; and fearful of further reducing the already too exhausted powers of my patient, I desisted. Having previously determined to adopt the plan of treatment lately brought before the profession by Drs Radford and Simpson, I proceeded to remove the placenta. Introducing my left hand, I completely, and in one mass, separated the placenta, which was immediately expelled with my hand into the vagina; after its complete removal, the hemorrhage, which before was considerable, *entirely* ceased. At this time, the pains were feeble, and not of frequent occurrence. At my next examination, I found that a hand had followed the placenta, and now presented at the os externum. With the usual precautions, version was easily accomplished, and the woman safely delivered of a still-born child. The uterus contracted with tolerable firmness, and no farther hemorrhage supervened. On the day following, I found my patient comfortable, though suffering slightly from the effects of the hemorrhage, and in a few days she was perfectly recovered."[2]

Case of placenta prævia; the placenta extracted artificially before the child; rapid recovery of the mother.—This case I have already alluded to as having happened in the practice of Dr Maclean. The subject of it, Mrs Nixon, was taken in labour with her eighth child

[1] Provincial Med. and Surg. Journal for July 1845, p. 471. [2] Ibid., p. 557.

on the 14th June 1845, at 4 P. M. The pains were trifling till about three next morning, when they became more frequent and severe, and were accompanied with a discharge of blood. The os uteri was found at this time expanded to the size of a shilling, but rigid and undilatable, with the placenta presenting over it, and a constant oozing of blood, which at each pain became much increased. The pains and discharge nearly ceased after the administration of a slight opiate, and using the ordinary means to check the hemorrhage. At 11 o'clock the pains and flooding returned; and an hour and a-half after this "I found," says Dr Maclean, "the os dilated to the size of a half crown, the placenta presenting, and protruding through it about one and a-half inches. The hemorrhage which had recurrred with the pains had caused such a degree of faintness and collapse, that the fatal termination of the case appeared inevitable; and the pains which now came on frequently, from the great weakness of the patient, had but little effect in dilating the os uteri, and advancing the labour. Having ascertained," he continues, "by the stethoscope, that the child was dead, and Mr Woodhead being again in attendance with me, it was at once agreed upon, in consultation, (the mother alone requiring our immediate attention, and the state of collapse to which she was reduced rendering the forced delivery by turning exceedingly dangerous, whilst the evacuation of the liquor amnii had entirely failed even to moderate the hemorrhage,) that I should immediately endeavour to suppress the discharge by separating the whole body of the placenta from the uterine parietes, when the patient might be allowed to rally a little before removing the child, supposing the views of Dr Simpson to be correct. Accordingly, having administered a small quantity of spirits, with a few drops of laudanum, to the patient, I immediately introduced my hand into the womb, so as to remove the placenta. This I was easily enabled to do, after dilating the os uteri, by pressing down the placenta, with the fingers introduced behind it, into the palm of the hand. A few minutes were sufficient to effect this; and I was much gratified to find all hemorrhage cease, as soon as the whole placental mass was detached. *The placental mass was detached.* The placenta being carried down into the vagina, a dose of ergot was administered, and, in about a quarter of an hour, the natural pains expelled the child. There was no after hemorrhage, and only slight lochial discharge. The mother recovered without the slightest drawback, and was out of bed in a few days."

"The above case," observes Dr Maclean, "from the alarming symptoms attending it, and the certain fatality which must have ensued, had the flooding continued for a short time longer, with the immediate suppression of all hemorrhage on the placenta being completely detached, thus allowing time for the patient to rally, would seem to prove the operation of turning in these cases to be almost needless; at the same time that it affords another instance of the accuracy of the conclusions published by Professor Simpson

in the *London and Edinburgh Journal* for March last, where he proposes in such cases to remove artificially the placenta, and not the child."[1]

After the present section was printed, my attention was accidentally called to some interesting remarks, bearing directly upon the point of which it treats, and contained in the old and rare "*Observations sur la Pratique des Accouchmens*" of Viardel, printed at Paris in 1671. I append a literal translation of the passage in Viardel's work.

"All these labours where the placenta presents or escapes entirely, are very dangerous, as the infant often loses its life, as happened to the wife of Monsieur le Fèvre, merchant, living in the Rue de Gèvre, in whom the after-birth presented first, and occupied all the internal orifice of the womb. Being called, therefore, to deliver her, and finding matters in this state, as I discovered from examination, I pushed back the after-birth with the extremity of my finger, in order to return it into the womb, and having passed my hand into it as far as I could, I passed it around the internal orifice in order to assure myself, and thus discovered that it was the after-birth which was entirely separated from the womb, (*entierement separé de la matrice*,) and that the infant presented behind it by the umbilicus. After observing all these things, and being assured that it was the placenta, I prepared to succour her as quickly as possible, in the following manner:—I placed her across the bed with the thighs separated and the heels drawn up to the hips, having first made her take a couple of eggs, with a little wine to strengthen her. I introduced my hand into the womb, (as I have said above,) and having arrived at the internal orifice, I grasped the placenta by its middle part with my open hand, and holding it firmly, drew it out of the womb, and, the moment it was out, I put back my hand to search for the feet of the child, and having found them I drew it out dead. . . . As soon as I completed the delivery, the loss of blood, which had persisted till then, and all the other accidents, ceased; and I believe that the infallible prognosis in such a case is, that the child must be dead, although in truth the case is not always so, for it may happen in similar labours, that the infant being strong and vigorous, may escape shipwreck if it be promptly and timeously succoured; and I may add here in confirmation of this, that I have met with a case of the same kind where the infant lived for three days, although very weak and feeble."[2]

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[1] Northern Journal of Medicine for August 1845, p. 132.

[2] Pratique des Accouchemens, p. 90.

PART III.

SECTION X.—CASES OF PLACENTA PRÆVIA IN WHICH IT IS PROPER, 1. TO EVACUATE THE LIQUOR AMNII; 2. TO EXTRACT THE INFANT BY TURNING: AND, 3, TO SEPARATE AND EXTRACT THE PLACENTA BEFORE THE CHILD.—SERIES OF CASES TO WHICH THIS LAST PRACTICE IS APPLICABLE, VIZ. 1. WHEN THE OS UTERI IS RIGID AND UNDILATABLE; 2. IN FIRST LABOURS; 3. IN PREMATURE LABOURS; 4. IN LABOURS SUPERVENING EARLIER THAN THE SEVENTH MONTH; 5. WHEN THE UTERUS IS TOO CONTRACTED TO ALLOW OF TURNING; 3. WHEN THE PELVIS OR PASSAGES ARE ORGANICALLY CONTRACTED; 7. IN CASES OF EXHAUSTION; 8. WHEN THE CHILD IS DEAD; 9. WHEN IT IS PREMATURE AND NOT VIABLE.

THE various cases adduced in the last section will probably be admitted on all hands to demonstrate sufficiently the practicability of the plan of treatment in *placenta prævia* which it is my object to bring before the profession in the present Essay. In the next instance, it is requisite for us to consider in what special cases of placental presentation it will be proper to adopt the principle of treatment in question.

I have already stated, (see page 10,) that I believe it would be found the just and legitimate mode of practice in these cases of placental presentation in which either the artificial evacuation of the liquor amnii is unsuccessful, or forced delivery by turning is inapplicable and dangerous.

To understand, then, thoroughly the varieties of cases in which we should adopt the complete separation and extraction of the placenta before the child as a line of practice, it will facilitate our inquiries if, in the first instance, we consider the class of cases in which, *first*, The evacuation of the liquor amnii ought to be followed, and, *secondly*, Those in which the delivery of the child by turning constitutes the fit mode of treatment. Having cleared the way by considering these two points, we shall be more able to judge of and appreciate the remaining varieties of placental complication in which this new means of treatment ought to be adopted.

I. CASES OF PLACENTA PRÆVIA, IN WHICH THE EVACUATION OF THE LIQUOR AMNII FORMS THE PROPER PRACTICE.

The artificial evacuation of the liquor amnii appears to be principally followed when the placental presentation is partial only, and consequently, when a segment of the bag of membranes, as well as a segment of the placenta itself, is placed over the os uteri. When this practice has the desired effect, it forms undoubtedly the simplest and safest of all the means of treatment. But its applicability is limited. The proportion of cases in which the placenta is observed to present partially would seem not to be so great as of those in which it presents completely.[1] Besides, when it does present partially, the rupture of the membranes and the escape of the liquor amnii would appear to be by no means so certain a mode of arresting the hemorrhage in this form of unavoidable as it is in accidental flooding.

"The method of Puzos[2] cannot," Baudelocque avers, "have, in these cases of partial placental presentation, those advantages which have been generally found in it when the source of the hemorrhage is further off, (or of the accidental form.) When the placenta is attached to the neck of the uterus, if the hemorrhage is suspended for a moment, when the waters are evacuated it soon appears again, and becomes so much the more abundant as the orifice of the uterus dilates further, and as the violence of the labour increases. I have met," he adds, "with but once case where the flooding has entirely ceased, after the evacuation of the waters, out of at least five-and-twenty where the placenta was attached to the neck of the uterus."[3]

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[1] Out of 50 cases of placenta prævia reported by Dr Francis Ramsbotham, the placenta presented completely in 32, and partially in 18 instances.—*Principles of Obstetric Surgery and Medicine*, Appendix, p. 721.

[2] *Puzos* wrote a very beautiful memoir upon the artificial evacuation of the liquor amnii, as a means of arresting and treating cases of accidental hemorrhage, (Memoire sur les Pertes, &c., et sur la Methode de procéder a l'Accouchement dans les Cas de Necessité, par une voye plus douce et plus sûre que celle qu'on a coutume d'employer. —Traité des Accouchemens, p. 323; or Mem. de l'Acad. de Chirurgie, tom. ii. p. 203, An. 1743.) Hence this practice is often spoken of, as in the text, under the name of the method of Puzos. The honour, however, of first proposing and adopting this particular line of treatment certainly belongs to *Mauriceau*, who described and practised it half a century before *Puzos*, (see his Maladies des Femmes, &c., tom. ii. cases, 307, 450, 459, 479, 480, &c.) He even preceded Puzos in his explanation of the principle upon which the treatment acts in suppressing the discharge. "The vessels of the uterus, which," says Mauriceau, "were open, became shut by the contraction of its proper substance, as soon as the waters of the infant, which held it extended, are evacuated from it." (tom. i. p. 334.) *Daventer* (Art of Midwifery Improved, p. 153, Engl. trans., London, 1716,) and *Dionis* (General Treatise of Midwifery, p. 244 of English transl., London, 1719,) both also recommended the practice previously to the time of Puzos. "But if there are floodings," says Dionis, "from the separation of some part of the after-birth, however little soever the womb is dilated, the membranes which contain the waters must be broke, that the distension may be taken off, and that the after-birth may not be farther loosened, which both prevents the increase of the flooding, and makes way for the child's advancing into the passage, and being born the sooner."

[3] System of Midwifery, Heath's translation, vol. ii. p. 37.

The practice of evacuating the liquor amnii in partial placental presentations has generally, however, been found much more successful than it appears to have proved in the hands of Bandelocque. No obstetrician has probably, in the present day, had more opportunities of testing its value than Dr Francis Ramsbotham of London. He informs us, in his Principles and Practice of Obstetric Medicine and Surgery, that he had attended, up to 1834, as many as forty-four cases of partial presentation of the placenta. In forty of these cases the membranes were ruptured some time before delivery. The results of the treatment of the artificial evacuation of the liquor amnii in forty of these cases was as follows :—

In thirteen cases—*or in* 32 *per cent. of the whole*—the labour was afterwards terminated by the natural powers alone.

In twenty-six cases—*or in* 65 *per cent. of the whole*—in consequence of the hemorrhage not ceasing on the evacuation of the liquor amnii, turning was subsequently adopted. One was terminated by the forceps.

Eight of the forty-four patients died, four of them apparently from the excessive loss of blood suffered before delivery was effected.

The principal arguments that have been used by obstetric authors against the artificial evacuation of the liquor amnii in placental presentations, have been, first, Its alleged inefficiency in arresting the hemorrhage; and, secondly, The difficulty which the loss of the liquor amnii entailed or produced in the operation of turning, if that operation afterwards required to be adopted in consequence of the continuance of the flooding. These objections, but particularly this last one, will probably be entirely removed, by having the other expedient in abeyance, to which our attention is directed in the present Essay, —namely, the complete detachment of the placenta itself. The previous evacuation of the liquor amnii, whether by puncturing the membranes or by puncturing the placenta, would not interfere with any plan that it might be afterwards considered proper to adopt for the entire detachment of the placental mass. The knowledge of this latter alternative will certainly entitle us to have oftener recourse than has hitherto been done to the milder expedient, in the first instance, of evacuating the liquor amnii. It can be practised, when necessary, at a time when the os uteri is still so small and contracted as not to admit easily of the adoption of other measures. Little or no difficulty is in general encountered in its performance. When, from the placental presentation being partial, the membranes alone require to be perforated, the nail of the fore-finger, or the end of a surgeon's probe, or of a wire or pen, will suffice for the purpose. But, when the placental presentation is more complete, the instrument that is employed requires to be passed through its substance, and more care is required lest the placental structure be too much lacerated, or the fœtus itself wounded. The hair needle, which we have

already (p.) found spoken of in this case by Daventer, the small trocar recommended for it by Deleurye, and the perforating instruments of Roederer,[1] Fried,[2] Ritzen,[3] Lluge,[4] &c.,[5] consisting of hollow tubes or canules, blunt or rounded at the extremity, and provided with a puncturing lancet, worked by a spiral spring, would probably none of them be so safe as other means with which the surgeon is more likely to be provided. The common surgical exploring needle might be used with a blunt instead of a sharp-pointed wire passed through it. Gendrin used successfully, and he states, "with facility," a common catheter. Probably its blunted extremity would more readily than we might at first conceive, pass through the membranes covering the placenta, in consequence of the resistance opposed on their fœtal side by the distension of the liquor amnii. A common quill, with a lateral aperture like that of a catheter cut near its extremity, and another at the opposite end of the barrel, to allow of a free escape to the waters, would perhaps answer the purpose perfectly, could always be easily procured, and its blunt point, like that of the catheter, would not endanger the infant. Perforating the placenta with the fore-finger, and rupturing the membranes with the nail, might in the same way be used with similar results, and even with greater certainty of effect; but, from what we have said of the source of discharge in unavoidable flooding, it would seem a leading object not to lacerate to any great and unnecessary extent the substance of the placenta itself, as its material vascular cells might thus be opened up to a more dangerous degree.[6]

If the operation, in whatever way performed, failed by not proving successful in sufficiently arresting the hemorrhage, it might still at least gain for us some time for the greater dilatation of the os uteri, and hence for the more easy separation of the placenta subsequently, and the more safe passage of the fœtus. Long ago, Deleurye stated the objects and advantages of the practice explicitly in the following terms:—"There are, notwithstanding, cases of placental presentation in which the placenta must be pierced: as, when it becomes necessary to terminate labour before the full term, without uterine contractions, in consequence of profuse flooding, and the fear of uterine inertia after this from the feebleness of the patient; then, with a thrust of a trocar, the evacuation of the waters is to be facilitated. The uterus, which by this evacuation ceases to be passively dilated, contracts and diminishes its volume, and we

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[1] Elementa Art. Obstetriciæ, par. 627.

[2] In Knauer's *Selectus Instrumentorum*, Tab. xxv. fig. 4.

[3] Scheibler's Dissertatio de rumpendis velamentus, &c.

[4] Die Auzeigen der Mechanischen Hülfen bei Entbingdunghd, &c.—mit Kupfern, p. 436.

[5] See Kilian's Operationslehre für Geburtshelfer, 1843, vol. i. p. 248; and Siebold's Abbildungen der Geburtshulfe, p. 162.

[6] Médecine Pratique, tom. ii. p. 350 and 352.

facilitate the time of election for delivering the woman with more safety."[1]

II. CASES OF PLACENTA PRÆVIA, IN WHICH TURNING FORMS THE PROPER PRACTICE.

I have already shown that several of the highest obstetric authorities look upon turning, and the artificial extraction of the infant, as the only advisable mode of treatment in every case of placenta prævia, and have quoted, at length, the opinions of Pleuck, Denman, Merriman, Conquest, &c., to this effect. (See pp. 9 and 10.) "When the placenta," says Dr Rigby, "is fixed to the os uteri, nothing but turning the child will put a stop to the flooding."[2] "It may be laid down as a rule," observes Dr Lee, "admitting of no exception, that where hemorrhage occurs from the placenta being situated over the os uteri, artificial delivery must be performed." The same author, in a later publication, candidly and correctly states in reference to this practice—the operation of turning in unavoidable hemorrhage: "at the best it is a dangerous operation, and you can never tell, with certainty, whether the patient will recover after its performance, however easily it may have been effected."[4]

The professed object of my present inquiry, is to attempt to prove that the artificial removal of the placenta is a much more safe and commendable operation in different forms of placental complication, than the artificial removal of the infant, and not attended with such extreme hazard to the life of the mother. There are, however, some cases of placental presentation in which the artificial delivery, or turning of the fœtus, will still remain as the most proper and legitimate plan of treatment. This remark applies, I believe, particularly to those instances in which the child is alive, and at or near the full term of utero-gestation, when labour supervenes; and where fortunately the mother has borne a family previously, and the os uteri, by the time the hemorrhage proceeds to a dangerous extent, is either so dilated, or dilatable, as to allow of the introduction of the hand of the operator and the extraction of the fœtus, without any fear of injury and laceration. Under such a condition, turning would afford a greater chance of life to the infant than any other mode of interference,—and I pre-suppose the state of the os uteri to be such, that the danger of lacerating it, and thus leading either to subsequent hemorrhage or phlebitis, is not so great as to endanger the mother's recovery.

Such a combination, however, of fortunate circumstances, will, I believe, be found to be the exception of the rule, and not by any

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[1] Traité des Accouchemens, p. 369.
[2] Essay on Uterine Hemorrhage, 6th ed., p. 91.
[3] Researches on the Pathology and Treatment of Diseases of Women, p. 207.
[4] Lectures on the Theory and Practice of Midwifery, p. 373.

means the rule itself.[1] Further, there is another set of cases of placental presentation, in which we must continue to be driven sooner or later to the adoption of turning. I have already shown that in a considerable portion of these presentations, the fœtus presents preternaturally, and in a number of them transversely. When the position of the fœtus is transverse, we must of course, ultimately rectify it, and deliver by turning. But here we are driven to adopt the operation of turning, not in consequence of the peculiar presentation of the placenta, but in consequence of the peculiar presentation of the child. Knowing that we can at any time safely arrest the hemorrhage by the complete detachment of the placenta, we shall be further able, in such cases of cross-birth, to delay, if in other respects it is imperatively necessary, the operation of turning, and select for it that time which may be considered most compatible with the state and structure of the uterus, and the safety and life of the mother.

III. CASES OF PLACENTA PRÆVIA, IN WHICH ARTIFICIAL DETACHMENT OF THE PLACENTA FORMS THE PROPER TREATMENT.

When our practical acquaintance with this method of treatment becomes more extensive, and the measures for effecting it are simplified and better understood, it is possible that the practice itself may come to be applied in almost all the instances of placental presentation that I have alluded to under the two preceding heads. This, however, is by no means the case under our present knowledge of the subject, and in the mean time I would wish to point out here in detail the special cases of placenta prævia in which the practice I propose seems to me to be more particularly applicable. These cases include, 1. Some complications on the part of the *mother*, especially such a degree of rigidity of the os uteri or vagina, or such obstructions of any form in the maternal passages or uterus itself, or such states of general constitutional exhaustion, as contra-indicate and prevent the safe exercise of the operation of turning. And, 2. Some complications on the part of the child, particularly its death or prematurity, rendering the operation of version unnecessary, so far as any view to its safety may bear upon the question, provided the mother can be delivered by means that afford greater safety to her. I shall now proceed to consider somewhat in detail each special set or division of cases to which the present mode of practice appears to be legitimately applicable.

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[1] Cases of placental presentation, thus favourable for the safe operation of turning, are much more likely to be met with in hospital than in private practice, because hospital patients are generally near the full term of delivery before they are admitted, but of 33 cases mentioned by Dr Lee, only 2 seem to have reached the full time. On the other hand, out of 11 cases which occurred in the Dublin Hospital during Dr Collins' mastership, all had reached the full time except 2. If turning were applied to every case, such evident differences in the conditions of the patients must, of necessity, greatly modify the resulting maternal dangers and mortality.

First Division.—*When the os and cervix uteri are too rigid or undilatable to allow of the safe exercise of the operation of turning.* Obstetric authors appear, as we have already seen, to be generally and perfectly agreed as to the propriety of turning in all cases of complete presentation of the placenta; they differ, however, from one another in regard to the time and circumstances which ought to be selected as most fit and safe for the performance of this operation in placenta prævia. Some strongly advise us to operate rather too soon than too late. Others as strenuously counsel us to beware of operating till the time that the os uteri is so dilated or dilatable as to permit of our interference without any chance of injuring or lacerating the cervix in the passage of our hand or the extraction of the infant. "In recommending early delivery, I think it right," says Dr Rigby, (the highest authority I can quote on such a subject,) "to express a caution against the premature introduction of the hand, and the too forcible dilatation of the os uteri, before it is sufficiently relaxed by pain or discharge; for it is undoubtedly very certain that the turning may be performed too soon, as well as too late, and that the consequences of the one may be as destructive to the patient as the other. I am particularly led to observe this, as I have lately been informed, from very good authority, (namely, a gentleman to whom one of the cases occurred,) of three unhappy instances of an error of this sort, which happened some years ago to three surgeons of established reputation, who, from the success they had met with in delivering several who were reduced to the last extremity, were encouraged to attempt it where but very little blood had been lost, in hopes that their patients' constitutions would suffer less injury, and their recovery be more speedy; which, till the experiment was made, was a very reasonable supposition. The woman died, and they seemed convinced that their deaths were owing to the violence of being delivered too soon, and not to the loss of blood, or any other cause."[1]

On the other hand, Dr Ingleby, the author of one of the best works that has been written on uterine hemorrhage, tells us that "a very experienced accoucheur, in whose practice about twenty cases of this description have occurred, informs me that those women who were delivered at an early period of gestation, recovered, but when delivery was postponed to a late period, the result was fatal. Similar answers have been given to the same inquiry by other gentlemen."[2]

Two great sources of danger, in fact, require to be taken into consideration in relation to the operation of turning, in each individual case of placental presentation, namely, *first*, The danger of too long a continuance of the hemorrhage, and consequently the exhaustion, and even the death of the patient, if the operation be not

[1] Essay on the Uterine Hemorrhage, by E. Rigby, p. 37.
[2] Practical Treatise on Uterine Hemorrhage, by John T. Ingleby, p. 147.

performed sufficiently early; and, *secondly*, The danger of contusion and laceration of the cervix uteri and its included vessels, if the operator, afraid of delay, and of the effects of the hemorrhage, proceeds to delivery too soon. And it is to be specially recollected in relation to this last point, that any degree of laceration in the tissues of the cervix uteri in a case of placenta prævia, is fraught with unusual and imminent danger. The part of the uterine parietes to which the placenta is affixed, becomes, as is well known, most freely supplied with blood-vessels; and there, in particular, the venous sinuses of the uterus are especially large and abundant. In placental presentations it is the cervix uteri itself that assumes this highly vascular condition; and hence any laceration or injury of it is much more liable to be followed, than under other positions of the placenta, with hemorrhage immediately after delivery, or with subsequent inflammation of its included and lacerated veins, giving rise to uterine phlebitis, a disease which, under one or other of its many forms, is found to be one of the most common causes of death after the occurrence of placental presentations.

The two preceding and opposite causes of danger and death to which the mother is submitted under the operation of version in placental presentations, appear to be very equally balanced in their consequences; that is to say, amongst the number of fatal cases which occur in practice, or are to be found upon record, nearly the same proportion appear to perish from the extent of the hemorrhage before delivery, or its subsequent effects, (the results of protracting the delivery, and from post-partum flooding from the lacerated vessels of the cervix uteri, with uterine phlebitis, and all the other fatal consequences arising from injury and laceration of the vascular structures of the cervix, when the os is injured by being forced open too early).

As this appears a most important practical point to establish on sufficient statistical data, I have collected into the following table the dates of the death of the mother in 78 fatal cases of placenta prævia, reported by the different authors whose works I have quoted in a former page, (p. .) The table is constructed to show, *first*, The number of mothers who died undelivered; *secondly*, The number of those that sunk within three hours after delivery, and probably from exhaustion, under the hemorrhage preceding flooding, or from its continuance from the lacerated vessels of the cervix, after the emptying of the uterus; *thirdly*, The number that died within 48 hours after delivery, and hence I suppose from exhaustion under hemorrhage and the operation of delivery; and, *lastly*, The number of those that died at a later period, after the immediate danger from the hemorrhage and operation had subsided, and when the fatal result was apparently always or almost always the consequence of uterine phlebitis, in some of its manifold forms. I may add, that out of the 23 cases included in this last

column, of the women died within the first week, during the second, during the third, and at a still later period.

Period of Death of the Mother in Fatal Cases of Placenta Prævia.

Reporters.	No. of Fatal Cases.	Died undelivered.	Died within 3 hours after delivery.	Within 48 hour.	At a later period.
Mauriceau,	3	1	1	1	...
Giffard,	7	...	6	1	...
Smellie,	6	3	2	...	1
Rigby,	11	2	3	3	3
Collins,	2	...	2	...	...
Lachapelle,	9	...	3	2	4
J. Ramsbotham,	9	1	7	1	...
F. Ramsbotham,	16	...	7	1	8
Lee,	15	1	5	2	7
Total,	78	8	36	11	23

Some authors and practitioners seem to have fallen into the mistake of supposing, that in all cases of placenta prævia, the os uteri will be found dilated or dilatable by the time that the hemorrhage had taken place to such an extent as to endanger the life of the mother. It may be sufficient to quote on such a point the opinions of an author, who has written one of the soundest and most classical professional works that we have in the English language: "In some cases," says Dr Denman, "in which it has been presumed to be necessary to deliver the patient on account of the hemorrhage, (in placenta prævia), the parts have been in such a state, that the operation could not, it was thought, be performed with safety. Whenever the case demands the operation, on account of the danger of the hemorrhage, the state of the parts will on this account *always* allow of it to be performed with safety, though not with equal facility."[1] It must however be confessed with regret, that the opinion here expressed by Dr Denman is rather the condition which we anxiously desire than that which we always meet with in practice. And our best practical authors seem to be becoming more and more agreed, that cases of placenta prævia are constantly occurring, in which the hemorrhage may proceed to such a degree, as to demand urgently artificial interference upon our part, in order to arrest its violence or complete the delivery, without the os uteri and passages being at the same time in such a condition as to permit of the safe passage of the hand into the uterus, or of the safe extraction of the infant from it.

"If," says Peu, "a pregnant woman is seized with considerable flooding, which does not cease, the secret is to deliver her as soon as possible. . . . For this I always suppose that there is a sufficient opening. For to force and dilate the internal orifices of the womb, is just so many deaths, or rather lives thrown away and

[1] Introduction to the Practice of Midwifery, p. .

sacrificed, *(c'est autant de morts, ou de vies plûtôt qu'on precipité et qu'on prodigne)*. If, then, the smallness of the opening, or the extreme debility of the patient, render the thing visibly impossible, it is better to leave the case to nature, than to irritate the blood so as to augment the flooding without hope of alleviating it."[1]

When treating of the subject of unavoidable hemorrhage, Professor Davis states, that he "had met with many examples even of fatal results of profuse uterine hemorrhage unaccompanied by any amount of dilatation of the orifice of the womb."[2] Dr Hamilton, when speaking of placental presentations, tells us that in the month of September 1816, he was called to two cases where the patient seemed to be in articulo from the deluge of the discharge, and nevertheless, where the os uteri was in the state of obstinate rigidity which Dr Davis has described. "It has been advised," Dr Rigby states, "never to introduce the hand till nature has shown some disposition to relieve herself by the dilatation of the os uteri to the size of a shilling, or a half-crown; and this rule is certainly founded on a rational principle; for when it is so much dilated, there is no doubt but the turning may be easily and safely effected, but from some of the annexed cases it appears, that a dilatation to this degree sometimes does *not take place at all*, and that even when the woman is dying from the great loss of blood, the uterus is very little open."[3] "There is not unfrequently," remarks Dr Lee, "most profuse and alarming flooding from complete placental presentation, where the os (uteri) is so thick, rigid, and undilatable, that it is impossible to introduce the hand into the uterus without producing certain mischief."[4]

"Again, it is by no means impossible," Dr Ramsbotham observes, "that such alarming symptoms, (the patient faint, and gasping, and cold, &c.,) may show themselves before the os uteri has acquired the diameter of half-a-crown, as to render it extremely hazardous for us to delay our means until that degree of dilatation is arrived at. The blood may be gushing forth in a copious and continued stream, or may be oozing away in a less violent though steady draining, or coagula of considerable size may be passing from the vagina every few minutes; and it must be evident to the least attentive observer, that such a state of things cannot be allowed to proceed unchecked. Two modes offer themselves for our choice; either immediate delivery, or endeavouring to restrain the flow, and delaying until the due degree of dilatation is effected. Our practice will mainly be guided by the state of the os uteri itself: if it appear soft, lax, and distensible, offering but little resistance to our fingers in the attempt at dilatation, we shall mostly be able, under the use of sufficient caution, to pass the hand entirely

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[1] Peu, Le Pratique des Accouchemens, p. 516.
[2] Principles and Practice of Obstetric Medicine, p. 1040.
[3] Essay on Uterine Hemorrhage, by E. Rigby, p. 38.
[4] Principles and Practice of Midwifery, p. 373.

through it without injury, even although its disk be not exceeding the diameter of a shilling; and, indeed, I have accomplished the operation of turning on some few occasions, under these unpromising circumstances, by slowly insinuating the fingers *seriatim*. Although then, such a proceeding be not desirable, if it can be avoided, inasmuch as every minute's delay brings with it an augmentation of danger,—we are fully justified in effecting the dilatation of the os uteri thus artificially, even when, at the commencement of our efforts, it will scarcely admit the introduction of the tips of two fingers."[1]

"I know," observes Dr Collins, "of no circumstance *so much to be dreaded* as the forcible introduction of the hand where the parts are in a rigid or unyielding state; for although turning the child is the established and most desirable practice, yet the success of this operation will mainly depend on the judgment of the practitioner in selecting the most proper and favourable time. Cases will happen where he is obliged either to suffer his patient to sink from loss of blood, or proceed to deliver when the parts are in an undilated and rigid state, in order to afford her the only chance of life; but dire necessity should alone compel him to hazard the consequences of such violence. We are well aware the os uteri will yield at a much earlier period, after a severe loss of blood, than under other circumstances; we are equally well aware of the great injury the patient sustains, by delaying delivery beyond the earliest moment that the mouth of the womb will by gentle efforts, permit the introduction of the hand; it is against *premature measures* we wish to guard the young practitioner; as every individual of experience will acknowledge the great embarrassment he not unfrequently has laboured under, in deciding on the time, beyond which, to defer affording assistance were timorously to risk his patient's safety, and previous to which, delivery would be either impracticable, or, if effected by violent means, truly dangerous; for even a slight injury to the mouth of the womb will prove more fatal, than an increased loss of blood, so long as the strength can possibly bear it."[2]

That the flooding in placental presentations sometimes proceeds to such an excess as to demand measures either for its suppression, or for the forcible delivery of the patient, *before* the os uteri is in such a dilated or dilatable state as to permit with safety to its structures of the operation of turning, admits of being still more forcibly illustrated by an appeal to the history of individual cases of unavoidable hemorrhage. As the matter is one of a most important bearing upon the argument before us, I shall offer no apology for enforcing and extending the evidence in favour of it, by adducing some individual facts and instances in illustration of my present purpose.

[1] Ramsbotham's Principles and Practice of Obstetric Medicine and Surgery, 2d edit. p. 387.

[2] Practical Treatise on Midwifery, p. 93.

"In no case," observes Dr Edward Rigby, "is it proper or safe to force delivery by artificially dilating the os uteri, when it is contracted and unyielding; but where the placenta is presenting, it is peculiarly dangerous, for even slight laceration of the os uteri will be followed by serious consequences. Where the placenta is situated in the upper part of the uterus, it is of very little consequence if the edge of the os uteri has been torn somewhat during labour; but in the present case it is very different,—the os uteri now plays the part of the fundus, its vessels are immensely dilated, and larger ones are ruptured, which cannot be closed by the finest contraction of the uterus. . . . Cases have occurred where the os uteri has been artificially dilated, where the child was turned and delivered with perfect safety, and the uterus contracted into a hard ball; in fact, everything seemed to have passed over favourably; a continued dribbling of blood has remained after labour, which resisted every attempt to check it; friction upon the abdomen, and other means for stopping hemorrhage by inducing firm contraction of the uterus, were of no use, for the uterus was already hard and well contracted; the patient has gradually become exhausted, and at last died: on examination after death, Professor Naegele has *invariably* found the os uteri more or less torn."[1]

We have sometimes proof afforded us in *post-mortem* examinations, of the fact, that unavoidable hemorrhage may proceed to a fatal extent during the first stage of labour, without the tissues of the os and cervix uteri ever dilating to such a degree as to allow of the introduction of the hand without laceration.

In his magnificent plates of the anatomy of the gravid uterus, Dr William Hunter has given two representations of the uterus of a woman who died of unavoidable hemorrhage during the first stage of labour. She had reached the ninth month of pregnancy. The first plate (Tab. xi.) represents the external surface of the uterus with the enormous uterine veins about the cervix much enlarged and injected. The second (Tab. xii.) shows the uterus opened with the placenta fixed over the os uteri, and the infant presenting in the second position of the head, or with the face looking to the left sacro-iliac synchondrosis.[2] The os uteri appears very small and unopened. The preparations of the parts in this case are still con-

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[1] It has always appeared to me a remarkable fact, that both in this plate and in the beautiful engraving, Tab. iv., of the natural position of the fœtus in utero, Dr Hunter, who is justly and deservedly celebrated for his accuracy and fidelity of observation, has represented the fœtus as lying in utero in a position which it very rarely occupies—so rarely indeed, that Naegele avers, he only met with it as an original position in twelve hundred. Plates xv. and xxiii. represent the child in the third position; none in the work shows it in the first or most frequent position. I may add, that the "reversing" the infant is not a mistake of the engraver's, as I find it exists in the original drawings by Rymsdyk, and which are still preserved in the museum. Some casts also, taken probably from the same preparations, show the fœtus placed in this unusual position.

[2] Rigby's System of Midwifery, p. 259.

tained in the Hunterian Museum belonging to the University of Glasgow. On lately examining them, I found the os uteri apparently not opened to the size of a shilling, and the lips of the cervix, particularly on one side, are so thick and turgid (they are correctly represented so in the plate,) as to leave no doubt that it would have been physically impossible to distend the uterine orifice, so as to admit the hand without certain laceration. The placenta is partially detached and slightly lacerated upon its external surface opposite the os. In reference to this preparation, I may add one fact bearing upon the matter discussed in a former page, relative to the mode in which retrograde hemorrhage is prevented from the uterine veins after the placenta is detached. The veins, as I have said, are very large, as seen in the published plates, and are injected with yellow wax. There is, however, no appearance whatever of any of this wax having reached as far back as the utero-placental orifices left by the separation of the placenta.

Long ago Dr Smellie detailed three cases of Cæsarean operation performed immediately after the mothers had died from unavoidable hemorrhage. These cases are interesting in a historical point of view, as affording some of the earliest evidence which we have on record of the occasional implantation and organic adhesion of the placenta to the interior of the cervix uteri being ascertained by actual dissection. They all occurred during the two years of 1747 and 1748.[1] One of the cases is further valuable in reference to our present inquiry, as showing a perfectly undilatable state of the os uteri, under fatal flooding from placental presentation. I shall append some details of it.

Case of Cæsarean Operation after death from unavoidable hemorrhage; rigid state of os uteri as found on dissection; its laceration under the attempt to open it.—"The woman was turned of 40, of a gross habit, and had never borne a child." After a fall in the seventh month, she had repeated discharges of blood. Two or three weeks before her full time, she was taken with slight pains, upon which Dr Smellie was called, and found the os uteri opened about the size of a sixpence, and within it a soft substance that felt like the placenta. As she had rested but indifferently the preceding night, was faint and weak, and had some small returns of the

[1] The first case in which post-mortem evidence of the organic implantation of the placenta over the os and cervix uteri, seems to have been that published by Petit, in the *Memoires de l'Academie* for 1723, p. . It is well known that the general belief of accoucheurs was that the placenta was always originally affixed to the interior of the fundus or body of the uterus; and when found at the os, it was believed to have separated and fallen down into that position. So late as 1717, Dr Simpson, Professor of Anatomy at St Andrews, published in the *Edinburgh Medical Essays*, vol. iv. p. , an essay, in which he attempted to prove "that the placenta *inviolably* adheres to the cavity of the fundus (uteri); with which it is ingraft, and can never again shift its place."

discharge, Dr Sands was consulted, and gave it as his opinion that it was still proper to support the patient's strength with broths and nourishing food, and more safe to wait till the slight pains should bring on the right labour, than to use any violence to deliver her immediately. "I was again," says Dr Smellie, "called about nine o'clock the same night, when she was taken all of a sudden with frequent faintings, in one of which she expired as I entered the room. This sudden alteration prevented me from making any attempt at delivery; and, indeed, had not this event happened, I should have been afraid of her dying in the operation, because of her gross and weak habit of body. As soon as all present were satisfied that the person was dead, I opened her abdomen, and having taken out the child, examined the uterus. I found the placenta firmly adhering to its interior and posterior parts; about two fingers' breadth of its lower edge was separated from the os internum which it covered; and this was what Dr Sands and I had felt in the morning. Having extracted the secundines, *I tried with my hand to open the os internum from the inside of the uterus, which with great force I performed, not without tearing it about two inches on one side.*" "By this," he adds, "it appears how difficult it is to dilate this part in women going with a first child, especially when they are pretty old. Indeed, it is sometimes impossible to be done before they come to their full time, and even then not until the parts are thin, soft, and largely opened by previous labours."[1]

If, in such cases as the preceding, it were necessary, in consequence of the extent of the hemorrhage, to proceed to delivery, and yet the os uteri were not more dilated or dilatable than it was found in Dr Smellie's patient after death, it is evident that the

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[1] Cases in Midwifery, vol. iii. Collection xxix. No. 1, Case ii. p. 412.—Dr Rigby, in commenting upon this case of Dr Smellie's, argues that the trial being made to open the mouth of the uterus after death, "when every strong membranous part is incapable of contraction and extension, is no proof that if the most favourable opportunity had been watched for, and a gradual and repeated endeavour to open it had been before made, it would not have succeeded."—*Essay on Uterine Hemorrhage*, p. 44. Dr Rigby appears to forget that the examination of the uterus, and the laceration of the os, upon attempting to open it, occurred *immediately* after death, and as the dilatability of the part depends upon its physical rather than its vital conditions, we cannot believe that an os uteri which was thus found incapable of dilatation without tearing after death, could have been found during life, a few minutes previously, capable in any degree of dilatation, without the same laceration. Dr Smellie has given an additional instance of Cæsarean operation, performed immediately after the death of the patient in unavoidable hemorrhage, with the view of saving the child. The dilatability of the os uteri was not in that instance in any way affected by the death of the mother; it was, as he describes, thin, soft, and open to the breadth of half a-crown. "*I dilated it with ease*, which showed that if I had been sent for in the evening, she might have been safely delivered." On Dr Smellie being called to this case, before he had time to put her in a position for delivery, the patient fainted away, was thrown into convulsions, and died instantly. Two or three years ago I had an opportunity of seeing the dissection of a woman who had died of accidental hemorrhage in the first stage of labour. The os uteri was dilated to nearly the size of a half crown, but its edges were perfectly rigid, and undilatable without tearing.

forcible introduction of the hand into the os uteri, and the artificial extraction of the child through it, would necessarily give rise to lacerations of a greater or less extent in the tissues of the cervix, and such we find to be the fact in actual practice. The simple details of some cases may enforce this important point, by showing the difficulties of the practitioner, and the dangers of the patient under such a complication. For this purpose I shall quote *verbatim* the reports of two or three instances from the valuable and practical works of Dr Collins and Dr Lee.

Case of profuse unavoidable hemorrhage; turning required while the passages were badly prepared; laceration of the cervix uteri; death.—W. S. was admitted, at her full time, November 12. She had been shedding occasionally for five days before, which reduced her to a state of great debility. There was no hemorrhage on her admission, but on examination, the placenta was found at the mouth of the womb, which was not more dilated than the size of a half crown, with its edge thick, but not *very* rigid. As the discharge had ceased, and her strength was much exhausted, she was ordered to be kept perfectly cool and quiet, to have some cold chicken broth. About an hour and a half afterwards, suddenly, the most profuse hemorrhage set in, so much so, that in two or three minutes, the blood was running in every direction over the edge of the bed; this was consequent on some slight uterine action. There being no chance of life without speedy delivery, we determined to make the attempt, though the parts were badly prepared; accordingly the hand was very slowly and cautiously introduced, and the feet brought down with little exertion; the uterus acted strongly, and felt well contracted after delivery. The placenta came away with the child. Great debility succeeded the operation, with a slight discharge of blood at intervals; and on examining an hour after, a laceration of the neck of the uterus, anteriorly and to the right side, was discovered, commencing at its junction with the vagina, and extending upwards. She died shortly afterwards. It was her fourth child—a girl, (living.) Dissection verified the result of the vaginal examination.[1]

As we have seen in a previous extract, p. , no author seems to be more thoroughly impressed than Dr Collins, with the necessity of not hastening the delivery in placental presentations, if it is at all possible to avoid it,—and the above case affords an apt illustration of Dr Lee's remark, that "it is sometimes absolutely necessary to deliver by turning before the hand can possibly be introduced into the uterus, without producing fatal contusion or laceration of the part."[2] The following are analogous cases from Dr Lee's own Clinical Reports.

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[1] Collins' Practical Treatise on Midwifery, p. 97.
[2] Lectures on Midwifery, p. 373.

Case of complete placental presentation, with exhausting hemorrhage; os uteri so rigid as not to allow the hand to pass; foot of the child seized through the os; forcible extraction of infant; death of the mother.—On the 12th January 1839, Mr Jones, of Carlisle Street, Soho Square, called me to a see a lady in the eighth and a half month of pregnancy, who had been attacked with uterine hemorrhage a month before. It first took place without any accident or pain, and the quantity lost was about half a pint, and it produced little effect upon the constitution. She remained quiet for several days, and then got up, and only felt a little weak. For ten days she went about, but the hemorrhage returned on the fifteenth day after the first attack, but not to a great extent. Seven days after this, a third and more profuse hemorrhage took place:—it gradually went off, but not so quickly as the other attacks. At one o'clock, 12th January, it was renewed to an alarming extent, without any pain;—about a quart of blood was suddenly lost, and she became extremely faint. At four A.M. the discharge still continued. When I first saw her, at seven o'clock, she felt faint; the pulse was rapid and feeble. The upper part of the vagina was filled with a large clot of blood, which adhered to the os uteri. By displacing this at the back part, I could distinctly feel the placenta adhering all round to the neck of the uterus, which was thick and rigid, and very little dilated. *The effect produced by the hemorrhage was so great, that it was evident death would soon take place, if the delivery were not speedily completed; and the state of the orifice was such, that it was certain the hand could not be passed, but with the greatest difficulty.* At eight o'clock, Dr Merriman saw her with us, and agreed that immediate delivery was necessary. I passed the right hand into the vagina, and insinuated my fingers between the uterus and placenta at the back part, and reached the membranes. But the *rigidity of the orifice was so great, that though I employed great force for a considerable time, I could not succeed* in getting the hand into the uterus. Dr Merriman recommended rupturing the membranes, and I was proceeding to do this with the fingers, when I felt one of the feet of the child, which I grasped and brought down into the vagina enveloped in the membranes, which then gave way. Nearly half an hour elapsed before the version could be completed, and when it was effected, the neck of the uterus grasped the neck of the child so firmly, that I experienced the greatest difficulty in extracting the head, and not till I had made pressure for some time with the finger, and dilated the orifice of the uterus. A great discharge of blood instantly followed; the placenta was removed, and every means employed to stop the hemorrhage, but the breathing became hurried, the extremities cold, and she died in less than an hour after delivery. Dr Merriman informed me, that a patient of his had actually died under similar circumstances before the

head could be extracted. He considers the tampon as of little or no use in such cases.[1]

Case of unavoidable hemorrhage, with exhaustion; delivery of child postponed from rigid state of os uteri; craniotomy; death of the mother immediately afterwards.—Mrs H. was attacked with uterine hemorrhage at the beginning of February 1839, when seven and a half months pregnant. About twelve days after, it returned a second time, and yesterday morning a third time. About half-past twelve on the 5th of March, Dr Davies requested me to see her with him, as the hemorrhage had returned in a dangerous form, and the orifice of the uterus was not in a condition to admit of delivery. We found the placenta adhering all round to the neck of the uterus, the orifice rigid and undilatable, and open to the extent of a crown, the head of the child presenting. By cold applied externally and internally, the hemorrhage was restrained till six o'clock in the morning, when it was renewed with violence. Dr Davies then pressed his fingers through the placenta, tore it in two parts, and perforated the membranes. Half-past eight A.M. no hemorrhage; slight pains. Eleven A.M. no flooding; head pressing into the orifice of the uterus. *We were prevented at the time from perforating and extracting the head, by the rigid state of the os uteri.* She seemed to regain strength during the day; but at ten in the evening, without any further loss of blood, she began to breathe with great difficulty, the lips were livid, the hands and feet cold, and it was evident she would soon die undelivered, if we did not interfere. I opened the head, and extracted it with the greatest difficulty, in consequence of the firm and rigid state of the os uteri. The operation was scarcely completed before she was dead.[2]

Case of unavoidable hemorrhage; turning attempted while the os uteri was too rigid to allow the hand to pass; two days subsequently syncope from sudden flooding; turning; death of the mother.—On the 26th April 1835, I was called to a patient of the St Marylebone Infirmary, who was more than seven months pregnant, and had been attacked fourteen days before with alarming uterine hemorrhage. The first discharge of blood took place during the night, when she was at rest; it was not preceded by a sense of uneasiness about the uterus, and could be referred to no accident or injury of any kind.

A considerable oozing of blood still continued, when I first saw her. The placenta presented; the orifice of the uterus was opened to the size of a crown piece, but its margin was so hard and undilatable, that I found it impossible, without employing too great force, to pass the hand into the uterus. After a cautious trial for about half an hour to get the hand insinuated through the orifice,

[1] Lee's Clinical Midwifery, p. 155. Case 282.

[2] Ibid. p. 157. Case 283.

I was compelled to withdraw it altogether, as there was no hope of overcoming the resistance. On the 27th, the flow of blood continued, the strength remaining unimpaired, and the os uteri being not less unyielding. I resolved to wait till relaxation should take place, and moderate the discharge by the recumbent position, and the application of cold externally and internally. 28*th*, A large quantity of blood suddenly escaped, which produced complete syncope. The countenance was afterwards pale, the extremities cold, and the pulse rapid and feeble. The os uteri being soft and dilatable, I immediately passed up the hand, and delivered by turning. The child was born alive. The placenta was removed soon after; but though no further loss of blood was experienced, she continued gradually to sink, and died in a few days.[1]

Case of severe and exhausting unavoidable hemorrhage, with the os uteri perfectly undilatable; a foot caught through the undilated os, and the child extracted; mother in great danger, but recovered.—"On the 7th October 1835, I was requested by Mr Gairdner, of Foley Place, to see a patient, residing in Frith Street, who had completed the seventh month of pregnancy, and had been attacked with uterine hemorrhage three weeks before. A slight discharge of blood had continued during the whole of this period, but it had produced little effect upon the system until a few hours before I saw her, when several pints of blood were suddenly discharged, and her whole strength seemed at once extinguished. The pulse was not perceptible; the extremities were cold, and the respiration feeble. The blood still continued to flow in great quantities, and it was evident death would soon take place if the uterus was not speedily emptied of its contents. The os uteri was not dilated to the size of a crown, and it was so rigid that I found it *absolutely impossible*, though I employed a degree of force scarcely justifiable, to pass more than three fingers within it. *The whole hand could not be made to pass, though it appeared certain that death would soon take place if delivery was not immediately accomplished.* On the fingers being withdrawn for a short time, the flooding continued. I made another effort to turn the child, but the resistance could not be overcome. I then pressed forward the fore and middle fingers of the right hand between the placenta and uterus, so as to reach the membranes, which I succeeded in tearing open. Pressing the fingers still forward, they came in contact with one of the feet, which they grasped and brought down into the vagina. This was pulled lower and lower till the whole extremities and nates were drawn into the os uteri; but so rigid did it continue to be, that although I exerted all the force I dared employ in dragging it down, half an hour elapsed before the pelvis of the child could be made to clear the orifice of the uterus. At last it was extracted, with the placenta, and the hemorrhage ceased. A violent rigor follow-

[1] Dr Lee's Clinical Midwifery, p. 145.

ed, which threatened for a time to destroy the patient. Bottles of hot water were applied to the feet and pit of the stomach, the whole body was covered with hot blankets, and brandy was liberally administered. She slowly recovered from the immense loss of blood."[1]

But if we pass from individual to general facts, and attempt, with this view, to ascertain statistically the actual results of the practice of turning, under the complication of dangerous unavoidable hemorrhage in connection with a rigid or insufficiently dilated os uteri, the consequences are probably more disastrous than the remarks which I have made, or the cases I have quoted, under the present head, would lead us to suppose. Dr Collins refers to cases of Dr Ramsbotham's in which, from the extent of the hemorrhage, and other symptoms, it was considered requisite to have recourse to turning with the os uteri still inadequately dilated. I find in Dr Ramsbotham's work three additional instances of the same kind. In his Clinical Midwifery, Dr Robert Lee states, that out of the thirty-five cases of placental presentation which he has recorded, "in eleven there had been more or less rigidity of the os uteri, with dangerous hemorrhage, and turning was performed in several of them where the whole hand could not be introduced into the uterus.[2] Mauriceau, Lachapelle, and Collins, give each one or two similar instances. The following table shows an analytical view of the results of all these cases in reference to their influence upon the life of the mother.

MATERNAL MORTALITY IN CASES OF PROFUSE UNAVOIDABLE HEMORRHAGE WHILE THE OS UTERI WAS STILL IMPERFECTLY DILATED.

Reporters.	No. of Cases.	Mothers lost.	Mothers saved.
Mauriceau.[3]	2	2	0
Lachapelle.[4]	1	1	0
J. Ramsbotham.[5]	8	7	1
R. Lee.[6]	11	8	3
Collins.[7]	2	2	0
F. Ramsbotham.[8]	1	1	0
Total	25	21	4

[1] Lee's Clinical Midwifery, p. 146. Case 267.

[2] Clinical Midwifery, p. 164. These eleven cases seem to be those marked as numbers 266, 271, 272, 274, 282, 283, 284, 285, 287, 289.

[3] Observations sur la Grossesse et l'Accouchment des Femmes, pp. 134, and 363.

[4] Pratique des Accouchemens, tom. ii. case 9, p.

[5] Observations in Midwifery, Part ii. Nos. 138, 139, 140, 141, 142, 144, 145, 149.

[6] Clinical Midwifery, cases, 266, 271, 272, 274, 277, 282, 283, 284, 285, 287, 289, p. 149, *et seq.*

[7] Practical Treatise on Midwifery, p. 97.

[8] London Medical Gazette for 1844, p. 279.

This table sufficiently demonstrates the extreme danger which the mother incurs when forcible delivery is required, and attempted to be accomplished by the operation of version with the os uteri still imperfectly dilated or dilatable. The result is, that calculating from the data which the table affords, 17 per cent. only of the mothers were saved and 83 per cent. of them died under the complication,—a result far greater than we find in any legitimatized surgical operation, and are more fatal than even the Cæsarean section itself."[1] But under this complication, we believe, that the complete artificial detachment of the placenta would be perfectly practicable in most, if not in all cases, and would consequently lead to the saving of many maternal lives. It would at once, as we have seen, arrest the hemorrhage which is the more immediate source of danger to the patient, and allow time for the os uteri to become relaxed and the labour to be completed, either by the natural pains, or otherwise, as might be afterwards found proper or necessary.

If our statistics are sufficiently extensive to be true, we might thus save 80 or 90 maternal lives out of every 100, by having recourse to artificial and complete detachment of the placenta, instead of losing 80 or 90 mothers out of every 100, by having recourse to the operation of turning. I shall afterwards take occasion to show, that in this complication the life of the child does not interfere in any material degree with these results, because the infant itself is almost invariably lost when turning is attempted under the particular complication in question.

SECOND SERIES.

In Cases of First Labour.

In another place[2] I have endeavoured to demonstrate that almost all obstetric complications are more frequent and formidable in first than in subsequent labours,—rupture of the uterus being the principal exception to this general rule. Placental presentations would seem to form another exceptional instance. I am not aware that any author alludes to this point, but it has struck me repeatedly in

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[1] Dr Churchill states the following conclusions as the results of his extensive inquiries into the mortality attendant upon the Cæsarean operation. "Among British practitioners in 40 cases, 11 mothers recovered and 29 died, or nearly three-fourths. Among Continental practitioners, out of 369 cases, 217 mothers recovered, and 152 died, or about 1 in 2½. Taking the entire number, which amounts to 409, we find that 228 mothers were saved, and 181 lost, or about 1 in 2¼.—*Researches on Operative Midwifery*, p. 221.

Dr Churchill has farther calculated, that in the Cæsarean operation, 160 children were saved, and 64 lost out of 224. We shall see afterwards, that on the other hand far more children are lost than saved in turning in placental presentation, with an undilated os uteri.

[2] Edinburgh Medical and Surgical Journal. Vol. , p.

pursuing the statistical inquiries upon which the present memoir is founded. In the Dublin Lying-in Hospital, during the period of Dr Collins' mastership, the proportion of first labours amounted to 30 per cent. of all the deliveries. During the same period, eleven cases of placental presentation were observed in the Hospital. In not one of the eleven did this complication occur in a first labour.[1] In the various reports of cases of placenta prævia, by Gifford, Smellie, Rigby, Clarke, Collins, Lee, and Ramsbotham, I find in all 55 instances in which the number of the pregnancy is mentioned.[2] In 3 only out of these 55 cases, was the accident observed in a first pregnancy. Out of 81 cases, collected from our own General Table of Cases in Lecture 1, with the number of the labour noted,—the patient was pregnant for the first time in 8 instances. (See p. 23.)

Thus adding these two collections of data together, we have 136 cases of placental presentation, and 11 only of these were observed in first labours.

If the rarity of placental presentations came to be fully established in first pregnancies by more extensive data,[3] may it not afford us some clue to the explanation of the cause or causes leading to the origin or production of that deviation in the site of the development of the placenta which constitutes placenta prævia?

But though placental presentations seem to occur rarely in first pregnancies, yet when they are met with, they are liable to exhibit unusual difficulties in consequence of the maternal passages being less dilated and dilatable than in women who have previously borne a family. Hence the labour is slower, and the hemorrhage consequently longer and more exhausting, before the parts are sufficiently relaxed to admit, with safety, of either the artificial or natural delivery of the infant. In speaking upon this point, in connection with the treatment of unavoidable hemorrhage, Dr Smellie justly observes, " the younger the woman is with child, the greater

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[1] See his Practical Treatise. Table, pp. 173, 175. Cases No. 4, 17, 33, 84, 50, 72, 77, 83, 89, 92, 119.

[2] *Mauriceau* does not mention the number of the pregnancy in any of his cases of *Placenta Prævia*. *Gifford* mentions it in 2, (see his cases in Midwifery, p. 203, and 492,) neither of them first labours. *Smellie* notices it in 9 cases, (Midwifery, vol. ii. p. 303, 310, 311; and vol. iii. p. 141, 162, 178, 409, 412, 415), one of them a first pregnancy. *Rigby* states it in 9 instances, (Essay on Uterine Hemorrhage, 6th edit., p. 203, 209, 218, 224, 232, 238, 240, 246, 253), none of them *primiparæ*. *Clarke*, in 4 cases, (Trans. of King and Queen's Coll. of Phys., vol. i., p. 380), are a first labour. *Lee*, in 4 cases, reports the number of the pregnancy, (Clinical Midwifery, cases 268, 272, 285, 288), all the patients had borne children previously. *Ramsbotham* records the number of the pregnancy in 6 of his cases, (Observations in Midwifery, 1st edit., p. 195, 200, 202, 206, 216, 233), one of them only confined for the first time.

[3] The only evidence to the contrary, that I have been able to find, is afforded by Madame Lachapelle's. She states that in her 16 placental presentations, 6 were labours with first children. Is this in any degree explicable by the kind of patients resorting to the Maternité Hospital of Paris, where Madame Lachapelle's observations were made? Are the patients in a great proportion about to be confined of illegitimate children, and pregnant for the first time?

is the difficulty in opening the *os internum*, and more so in the *first* child, especially if she is past the age of thirty-five."[1] In a previous page (p.) I have already quoted from Dr Smellie an account of the post-mortem appearances and state of the os uteri, which he observed in a patient that had died in her first pregnancy of unavoidable hemorrhage. Adverting to the force required to open the os uteri in that instance after death, Dr Smellie observes, "By this it appears how difficult it is to dilate this part in women going of a *first* child, especially when they are pretty old. Indeed it is sometimes impossible to be done before they come to their full time, and even then, not until the parts are thin, soft, and largely opened by previous labours."[2]

In consequence of the preceding circumstances rendering a first labour with unavoidable hemorrhage both more tedious in its course, before artificial delivery can be adopted, and the artificial delivery itself more difficult of execution, after it is had recourse to —placental presentations, with this complication, would appear to be very dangerons and fatal to the mother. Out of ten cases of unavoidable hemorrhage in connection with first labour, which I find in the reports of Smellie, Clarke, Lachapelle, and Drs J. and F. Ramsbotham, seven of the mothers died. One or two cases may serve to illustrate the difficulties and dangers to which I have adverted. Dr Francis Ramsbotham has given the following instance among his elaborate and valuable tables and notes of the obstetric practice of the London Maternity Charity.

Case of unavoidable hemorrhage with a first child; excessive rigidity; turning and perforation of the infant's head; death of the mother.—The patient, the subject of this case, "was more than 40 years old, and it was her first child; there was excessive rigidity of the os uteri and other strictures." When first examined, the os uteri was not dilated to more than the size of a shilling. A catheter was passed into the uterus "by the side of the placenta," and the membranes were thus ruptured. This proceeding did not arrest the hemorrhage, and two hours after, delivery, by turning, was proceeded with. "Great difficulty" was experienced in introducing the hand and extracting the body of the child. The head was perforated to enable it to pass. "The placenta was immediately

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[1] Treatise on Midwifery, vol. i., p. 332. *Dr Rigby*, (Essay on Hemorrhage, p. 36), and *Dr Dewees*, (System of Midwifery, p. 385), both advert to the difficulty which is apt to be met with in making a proper examination even of the presenting part in unavoidable hemorrhage, occurring with a first child. "It must be acknowledged," (to quote Dr Rigby,) "indeed, that it may sometimes happen, that at the very first coming on of the complaint, if the discharge be small, and more especially if it be the patient's first child, and the parts be close and unyielding, the admission of the hand into the vagina, as I have directed, will be attended with the utmost difficulty, and perhaps be almost impracticable."

[2] Smellie's Midwifery, vol. iii. p. 414.

expelled, and although she had spoken cheerfully the minute before, she expired suddenly directly it was born."[1]

Case of placental presentation in a first labour; turning with os uteri, &c. offering resistance; death of the mother in three days afterwards.—The case is detailed by Dr Ramsbotham, in his Practical Observations. The patient was in the eighth month of pregnancy of her first child. During the preceding month she had had repeated attacks of hemorrhage which subsided spontaneously. Upon making an examination, "although the os uteri was rigid and but little opened," the placenta could be detected. She continued free from any discharge the whole of two following days, when a more violent return of hemorrhage occurred. The operation of turning was proceeded in. "The external parts, the vagina, and the os uteri had shown little disposition to give way." The os uteri "offered considerable resistance" to the entrance of the hand, "binding it tightly around like a cord." This was overcome, a foot was seized, and the breech brought down,—uterine action became strong and "expelled the rest of the child alive." After delivery there was no further loss, she was, however, much exhausted. On the second day she was attacked with vomitings of a dark greenish fluid, and complained of pain in the belly, which felt tender and swelled; the pulse was small and quick. In the course of the night she expired. "A *post-mortem* examination was not allowed; yet I could not, (observes Dr Ramsbotham,) divest myself of the suspicion, that some injury was inflicted upon the parts in the act of delivery, although I was not aware of such a fact at the moment."[2]

After what I have stated under the preceding division upon division of the os uteri in placental presentations, the practical inference which I would wish to draw from the above remarks and cases, upon unavoidable hemorrhage in first labours, is obvious. In the present as in the former instance, and for the same reasons, I am inclined to believe, that the complete separation and extraction of the placenta will be found more safe and far more practicable in the generality of first pregnancies with unavoidable hemorrhage, than the forced delivery of the infant by turning. The os uteri, however, in some such cases may be found, at the time required, sufficiently dilated or dilatable to allow of the artificial extraction of the infant, provided that plan be deemed, in other respects, proper and preferable. I here speak of the propriety of the separation of the placenta in first pregnancies, because I believe it will be more frequently found the proper line of proceeding in first than in subsequent deliveries, in which the passages yield earlier and more speedily and readily under the relaxing effects of the labour pains and the hemorrhage, and permit earlier and more safely of artificial delivery.

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[1] London Medical Gazette for 1844, p. 279.
[2] Practical Observations, Part ii. p. 206.


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